MINNEHAHA CREEK WATERSHED DISTRICT

QUALITY OF WATER QUALITY OF LIFE

MEMORANDUM

To: MCWD Board of Managers

From: Michael Hayman

Date: August 13, 2015

Re: Item 10.2: Approval of permit 15-413 and authorization to enter into a cooperative agreement with Japs Olson Company and the City of St. Louis Park

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The District is actively working with Japs Olson Company and the City of St. Louis Park to draft a cooperative agreement and coordinate redevelopment opportunities within the Minnehaha Creek Greenway. The most recent and pertinent information is included with the Board packet for review prior to the workshop. Due to the dynamic nature of this public-private partnership, and the fluid state of project development, staff is planning to provide a redlined package containing any relevant edits and additional information that may be advanced between now and the Board workshop. Delivery of this information will occur at the Board workshop.

If there are questions in advance of the meeting, please contact Michael Hayman at mhayman@minnehahacreek.org or 952.471.8226

Minnehaha Creek Watershed District *REQUEST FOR BOARD ACTION*

MEETING DATE: August 13, 2015

TITLE: Approval of permit 15-413 and authorization to enter into a cooperative agreement with Japs Olson Company and the City of St. Louis Park.

RESOLUTION NUMBER: 15-XXX

PREPARED BY: Michael Hayman

E-MAIL: Mhayman@minnehahacreek.org **TELEPHONE:** 952-471-8226

REVIEWED BY: ☐Administrator ☒ Counsel ☒ Program Mgr. (Name): James Wisker
☐ Board Committee ☐ Engineer ☐ Other

WORKSHOP ACTION:

☐ Advance to Board mtg. Consent Agenda. ☐ Advance to Board meeting for discussion prior to action.

☐ Refer to a future workshop (date):_____ ☐ Refer to taskforce or committee (date):_____

☐ Return to staff for additional work. ☐ No further action requested.

☒ Other (specify): **Final Action at Board Workshop August 13, 2015**

PURPOSE or ACTION REQUESTED:

- Approval of permit 15-413 for the proposed Japs Olson redevelopment. Conditioned on:
  - Execution of a stormwater management agreement among Japs Olson, MCWD and St. Louis Park
  - Recording of a maintenance declaration for parking lot stormwater facilities
  - Establishing a financial assurance for erosion control and stormwater management
  - Submittal of final Phase 2 plans before construction to ensure consistency with this permit

- Authorization to enter into a stormwater management agreement with Japs Olson Company and the City of St. Louis Park, pursuant to which:
  - Japs Olson constructs required stormwater management facilities on the ApplianceSmart site;
  - Japs Olson Company constructs non-required regional stormwater management facilities on the ApplianceSmart site;
  - Japs Olson conveys about 3.67 acres of greenspace underlying the ApplianceSmart pretreatment and filtration basins, in fee, to the MCWD; and
  - MCWD allows Japs Olson to utilize regional stormwater facilities planned at 325 Blake Road to meet regulatory requirements for management of runoff from 7 acres of its planned expansion;
  - MCWD assumes Japs Olson maintenance obligations over pretreatment and filtration basins on the land conveyed to the District in fee;
  - St. Louis Park agrees to allow Japs Olson to modify St. Louis Park stormwater infrastructure necessary to collect and transport 3.6 acres of currently untreated road and commercial hard surface runoff to the new filtration basin;

PROJECT/PROGRAM LOCATION:
7500 Excelsior Boulevard, St. Louis Park

PROJECT TIMELINE:

- August 13, 2015 – Authorize cooperative agreement and approve permit for redevelopment
- August 27, 2015 – Public Hearing and Board consideration of project ordering
- August-December 2015 – Japs Olson construction of Phase I of project
- Spring 2016 – District enhancements and greenway connections
- Spring 2016-2017 – Japs Olson construction of Phase II of project – main facility expansion
- 2018 – 325 Blake Road stormwater facility implementation

PAST BOARD ACTIONS:

- September 26, 2013 – Adoption of a policy regarding the use of District regional stormwater management facilities for regulatory compliance (13-098)
- February 27, 2014 – Authorization to enter into agreement with Wenck Associates for stormwater/corridor feasibility analysis in the Powell Road/Meadowbrook Road area and execute a letter of understanding with Japs-Olson Company (14-014)
- May 14, 2015 – Acceptance of Japs Olson Greenway report and authorization to continue partnership development with Japs Olson Company (Board Action absent of RBA – passed 7-0)

SUMMARY:

The Minnehaha Creek Watershed District has repeatedly taken efforts to integrate its planning and implementation with that of other public and private entities, incorporating its strategic natural resource improvements into the built environment in ways that create livable communities and are mutually beneficial to its partners.

This philosophy has been particularly useful within the urban corridor of Minnehaha Creek, between Highway 169 and Meadowbrook Lake, which produces the highest pollutant load per unit area when compared to all other segments of Minnehaha Creek. Within this focal geography the District has engaged in partnership across sectors to align water resource investments with non-water initiatives, often resulting in added environmental, economic and community value.

In 2013 the District initiated partnership discussions with the Japs Olson Company, which was planning an expansion to its business on approximately 32.45 acres of land located at 7500 Excelsior Blvd. in the cities of St. Louis Park and Hopkins. Japs Olson is bordered on the west by the District's Powell Road stormwater diversion, on the north by Minnehaha Creek, and on the east by the District's and St. Louis Park's recently constructed Minnehaha Creek Preserve.

In 2014, the MCWD Board of Managers authorized the execution of a partnership framework via a non-binding Letter of Understanding (LOU) with the Japs-Olson Company. That LOU contemplated a planning partnership to explore optimizing Japs-Olson's parking, enabling Japs-Olson to meet regulatory stormwater requirements associated with its redevelopment through use of MCWD's regional facilities, the conveyance of a portion of the ApplianceSmart site to the District, and the relocation of a portion of Powell Road.

Through this collaborative planning effort Japs Olson and MCWD determined that, given the proposed configuration of the development, Japs Olson's preferred stormwater management plan would treat new parking lot runoff through filtration islands within the parking lot and that all other runoff from the principal facility at 7500 Excelsior Boulevard would need to be conveyed east to newly constructed stormwater facilities on the former ApplianceSmart site. However, due to issues with grade, conveying the western seven acres of the principal facility east to the ApplianceSmart site cannot be accomplished by gravity and would require stormwater lift stations to pump water north along Powell Road and east across Meadowbrook Road into the ApplianceSmart site.

The continued feasibility investigation also revealed that approximately 4 acres of Meadowbrook Road and adjacent private runoff could be diverted into the ApplianceSmart site, thus providing a regional stormwater opportunity and creating treatment above that required by regulation.

Consistent with the executed Letter of Understanding the two parties discussed the opportunity to enter into a stormwater management agreement (Attachment 2) that would:

- Have Japs Olson construct stormwater facilities (parking filtration islands and filtration basins) on the ApplianceSmart site that would satisfy Japs Olson's regulatory requirements, in a configuration desired by the District, for all but the western 7 acres of runoff from the principal facility;
- Have Japs Olson construct the Meadowbrook Road stormwater diversion, at its own cost, to provide an additional 4 acres of regional treatment not required by regulation;
- Have Japs Olson convey all residual greenspace and land underlying the stormwater facility to MCWD at no cost to the District;
- Have MCWD allow Japs Olson to convey runoff from the western 7 acres of its principal facility into the District's regional facility planned at 325 Blake Road;
- Have MCWD assume maintenance obligations for the stormwater facility on the land conveyed by Japs Olson to the District.

The City of St. Louis Park is also a party to the cooperative agreement as they have been working collaboratively to assist in the redevelopment and enhancements throughout the Minnehaha Creek Greenway region. As identified in the agreement, the City has taken steps to complete a land swap with the City of Hopkins that adjusts the municipal boundary such that the entire Japs Olson expansion will lie within the City of St. Louis Park. The City has also approved the conditional use permit (CUP) for the expansion, agreed to provide appropriate approvals to Japs Olson for work within the Meadowbrook Road right-of-way, and accept the realigned infrastructure as part of the municipal system.

The recently submitted letter of support (Attachment 3) endorses our continued focus within the Minnehaha Creek Greenway and establishes support for the remaining administrative steps of approving the stormwater management agreement and approving the right-of-way permits. This partnership with the City of St. Louis Park has proven integral to all of the District's efforts throughout the greenway.

At the August 13, 2015 Board workshop staff will provide a detailed presentation of the following project components:

- Powell Road/Meadowbrook Road stormwater feasibility
- Japs Olson redevelopment plans and their integration into the Minnehaha Creek Greenway
- Permit 15-413 report and details (Attachment 1)
- Stormwater management agreement among the District, Japs Olson Company and City of St. Louis Park

Staff is recommending the Board approve permit 15-413 for the Japs Olson redevelopment project and authorize the administrator to enter into a cooperative agreement with Japs Olson Company and the City of St. Louis Park.

Attachments

1. Permit Report 15-413
2. Draft Stormwater Management Agreement
3. City of St. Louis Park letter of support
4. Minnehaha Creek Greenway master plan expansion images

RESOLUTION

TITLE: **Approval of permit 15-413 and authorization to enter into a cooperative agreement with Japs Olson Company and the City of St. Louis Park.**

WHEREAS the Minnehaha Creek corridor's water quality, channel geomorphology, habitat and public access has been negatively impacted from decades of urban development; and

WHEREAS, the Minnehaha Creek and Lake Hiawatha Total Maximum Daily Load identifies the area between west 36th Street and Meadowbrook Lake as producing the highest pollutant loading per unit area within the subwatershed; and

WHEREAS, the Minnehaha Creek Watershed District has identified the area between west 36th Street and Meadowbrook Lake as a priority area for capital improvements focused on stormwater management, greenspace expansion and increased recreational access; and

WHEREAS, the MCWD has been working in this area with the Cities of St. Louis Park and Hopkins, and with other public and private partners, to implement a series of strategic initiatives to restore, enhance and connect the Minnehaha Greenway; and

WHEREAS, the District and the City of St. Louis Park recently partnered to complete the construction of the Minnehaha Preserve, which manages over 80 acres of regional stormwater and provides public access to 30 acres of restored riparian greenspace around Minnehaha Creek between Meadowbrook Road and Louisiana Avenue; and

WHEREAS, Japs Olson Company is planning an expansion of its facility on 30.52 acres of property it owns along Excelsior, Powell and Meadowbrook Roads in the City of St. Louis Park and the City of Hopkins, which is contiguous with the MCWD's Minnehaha Preserve project and the Powell Road regional stormwater diversion to 325 Blake Road; and

WHEREAS, on September 26, 2013 the MCWD Board of Managers adopted a policy supporting the use of District regional stormwater management facilities for regulatory compliance, on the finding that:

- Enhanced treatment effectiveness by optimal location of facilities on the landscape;
- Cost-effectiveness through economy of scale in design, construction and maintenance;
- Opportunity to better integrate regional stormwater management into land use planning of the District's constituent cities;
- Private benefits of improved development/redevelopment footprint and providing for regulatory compliance in advance, affording the opportunity to cooperate with property owners toward public goals; and
- Facility maintenance that is more cost-effective and, when performed under the oversight of the District or a public partner, more reliable;

WHEREAS, on February 27, 2014 the MCWD Board of Managers authorized the execution of a non-binding Letter of Understanding with the Japs Olson Company to collaborate on planning to explore a partnership potentially including:

- Relocating that part of Powell Road north of the Japs Olson facility to enlarge the Minnehaha Creek corridor, creating the opportunity for corridor restoration.
- Optimizing Japs Olson parking, and if Japs Olson concludes that its expansion allows, conveying a part of the ApplianceSmart site to the District to expand green space and regional stormwater management capacity east of Japs Olson.
- Enabling Japs Olson to meet regulatory stormwater management requirements associated with its redevelopment through the use of regional stormwater facilities managed by the District on land

adjacent to or near the Japs Olson facility, alone or in combination with stormwater facilities on the Japs Olson property

WHEREAS, consistent with the Letter of Intent, MCWD, Japs Olson Company and the City of St. Louis Park have collaboratively developed a draft stormwater management agreement that:

- Optimizes Japs Olson's parking, providing regulatory required treatment for runoff from approximately 24 acres of Japs Olson's planned expansion and runoff from approximately 4 acres of non-regulatory required drainage on the ApplianceSmart site;

- Has Japs Olson conveying about 3.67 acres of land on the ApplianceSmart site, in fee, to MCWD, which through vegetative enhancement and other measures the MCWD would plan to integrate within its contiguous restored Minnehaha Preserve properties;

- Enables Japs Olson to divert approximately 7 acres of runoff from its planned expansion to the District's planned regional facility at 325 Blake Road.

WHEREAS, on May 14, 2015 the MCWD Board of Managers, through resolution, reaffirmed their support of advancing the project; and

WHEREAS, the Board of Managers has reviewed permit application 15-413 and finds that with conditions recommended by District staff, it meets the requirements of the District's erosion control and stormwater management rules, except that it requires an exception to allow a delay in treating a portion of Phase 2 runoff;

WHEREAS, the exception provision of the District variance rule requires the Board of Managers to find that the proposed deviation from the rules will "achieve a greater degree of water resource protection" than strict compliance with the rules;

WHEREAS, the proposed stormwater management agreement provides the basis to find that the criterion for an exception is met and, further, achieves cooperative gains for Japs-Olson, St. Louis Park and the District that would not be achieved simply through the permitting process;

WHEREAS, St. Louis Park has provided a letter supporting the cooperative effort and the proposed agreement dated August 10, 2015 which endorses ongoing partnership efforts to expand the Minnehaha Creek Greenway, and defines the intent of the City to facilitate Japs Olson partnership efforts on project applications including Right-Of-Way permissions allowing Japs Olson to construct the approximately 4-acre Meadowbrook Road stormwater diversion, and the subdivision of land that Japs Olson plans to convey to the District;

WHEREAS, Japs-Olson Company has stated its willingness and desire to pursue its redevelopment activity within the framework of the agreement;

WHEREAS, the agreement recognizes that it is contingent on the Board of Managers' approval of the District's expenditure of levied funds on its obligations pursuant to Minnesota Statutes §103B.251, which presently is on the Board's agenda for public hearing and consideration on August 27, 2015;

THEREFORE BE IT RESOLVED that District Permit No. 15-413 hereby is approved, with conditions as set forth in the staff report; and

BE IT FURTHER RESOLVED that the President of the Board of Managers is authorized to sign the proposed stormwater management agreement as presented or with non-material changes, on advice of counsel.

Resolution Number 15-XXX was moved by Manager _____, seconded by Manager _____. Motion to adopt the resolution ___ ayes, ___ nays, ___abstentions. Date: _____.

_____ Date: _____

Secretary

Permit Application No.: **15-413**

Rules: **Erosion Control, Stormwater Management and Exception**

Applicant: **Japs Olson Company**
Project: **Japs Olson Redevelopment Project**
Location: **7500 Excelsior Boulevard, St. Louis Park**
Publicly Noticed: **August 5, 2015**

Staff Recommendation:
Permit approval with the following condition(s):

1. Japs Olson will meet stormwater management and stormwater facility maintenance requirements by executing an agreement with the District and the City of St. Louis Park under which the District will agree to maintain the Meadowbrook filtration basin as required by this permit, to accept stormwater from the western 7.5 acres at the 325 Blake Road facility once operational, and to maintain the Blake Road facility as required by this permit.

2. Submission of a declaration and maintenance agreement for the Parking Median Filtration areas, for approval, then recordation;

3. Submission of a Financial Assurance for Parking Median Filtration areas in the amount of $17,500;

4. Submittal of final Phase 2 construction plans before construction begins and District written confirmation that plans are consistent with this approval.

Summary of Proposed Project:

Japs Olson Company (Japs Olson) has applied for a Minnehaha Creek Watershed District (MCWD) permit for Erosion Control and Stormwater Management for a proposed redevelopment on 32.45 acres of commercial property located across several properties (3964 Meadowbrook Road, 7500 Excelsior Blvd., 7630 Excelsior Blvd., 30 Address Unassigned, 7400 Excelsior Blvd., 3985 Meadowbrook Road) in the cities of St. Louis Park and Hopkins (Figure 1).

Japs Olson is proposing a two phased redevelopment of the parcels, with the demolition of ApplianceSmart and construction of the parking lot representing phase one, and the construction of the western expansion representing phase two (Figure 2). The second phase of the expansion will eliminate the majority of Japs Olson's existing employee parking and thus the reason for completing phase one of the project. The new parking associated with phase one is proposed to be placed on property owned by Japs Olson at 7400 Excelsior Boulevard, the current ApplianceSmart site located east of Meadowbrook Road.

Pursuant to code requirements of the City of St. Louis Park, Japs Olson is required to provide 751 parking spaces and 5.3 acres of parking. Japs Olson is proposing to meet municipal parking requirements through the use of "proof of parking". Accordingly, Japs Olson is proposing to construct 4.0 acres of parking with 514 parking spaces, while leaving 1.3 acres in greenspace encumbered as proof of parking, intended for 237 additional parking spaces for future conversion to parking should it be required based on parking demand generated by the principal facility (Figure 2).

The proposed redevelopment triggers Minnehaha Creek Watershed District's regulations for Erosion Control and Stormwater Management. These redevelopment activities across the 32.45 acres of Japs Olson owned property, for purposes of MCWD stormwater management requirements, are considered in aggregate due to common ownership pursuant to Section 2 of the Stormwater Management Rule. A breakdown of the phases, areas of disturbance and impervious coverage are provided in Table 1 below. Project Site Plans and Specifications are provided in Attachment 1.

Phase	Size of Site (ac)	Area of Disturbance (ac)	Existing Impervious (ac)	Proposed Impervious (ac)
Phase 1	24.4[1]	9.2	20.5	17.2
Phase 2	8.2	7.7	6.5	7.5
Full Redevelopment	32.6	16.9 (51%) Disturbed	27.0	24.6 (7.2%) Reduction

Table 1: Project Phasing

1. Includes re-directed roof run-off from portions of 7500 Excelsior Boulevard and 7400 Excelsior Boulevard shown on Figure 3.

In accordance with Section 4 of the MCWD's Stormwater Management Rule, the Japs Olson project is greater than five acres and disturbs more than 40 percent of the site and is, therefore, required to provide phosphorus, rate, and volume control for the entire site's impervious surface. In providing volume control, rate and phosphorus control are also provided.

In total, the proposed redevelopment will disturb 51% of the aggregate properties and result in a 2.35 acre decrease in impervious surface across the 32.45 acres of property. Under current conditions this area drains untreated directly to Minnehaha Creek and wetlands located at the Minnehaha Preserve. Under existing conditions the western portion of the principal facility located at 7500 Excelsior Boulevard drains north through stormsewer, within the parking lot, and discharges through Powell Road outlet into Minnehaha Creek. The eastern portion of the facility drains through roof drains down into stormsewer located behind the loading docks under the main slab in the interior of the facility, traveling north and discharging into Minnehaha Creek just west of Meadowbrook Road. Property located at the ApplianceSmart site drains via sheet flow into the Minnehaha Preserve wetlands (Figure 3).

As is discussed below, Japs Olson intends to construct its expansion project in partnership with the District and the City of St. Louis Park. Under a proposed agreement, the project in addition will incorporate drainage from Meadowbrook Road which will be re-routed to the filtration ponds associated with phase one of the project. The Meadowbrook Road drainage area is 3.6 acres in size and will not change the impervious surface coverage as a result of the project (Figure 4). This 3.6 acres is not subject to treatment requirements under this permit, however it is a chief justification for an exception requested under the District's Variance Rule (see below).

As outlined above, common scheme of development thresholds require Japs Olson to provide a stormwater management plan including one inch of volume abstraction for its entire site. Since the construction of the redevelopment is proposed to be phased, final detailed construction plans for the second phase expansion are not yet complete. As is customary with phased developments, stormwater requirements and facilities have been designed based on the total layout of impervious surface for Japs Olson's expansion. Therefore, MCWD will require final construction documents to be submitted detailing on site stormsewer drainage and connection for the western expansion, prior to the initiation of the final phase of construction (Figure 4).

Partnership Summary:

Recognizing the location of Japs Olson Company relative to several strategic initiatives of MCWD (Powell Road regional stormwater diversion, Minnehaha Preserve, and Minnehaha Creek north of Powell Road) the District initiated discussion with Japs Olson prior to its redevelopment planning process. After discussing the opportunity for mutual benefit, on February 9, 2014, the District and Japs Olson executed a Letter of Understanding to formalize a collaborative planning effort to explore areas including:

- Optimizing Japs Olson's parking and conveyance of part of the ApplianceSmart site to the District to expand greenspace and provide for regional stormwater management.
- Enabling Japs Olson to meet regulatory stormwater management requirements associated with its redevelopment through the use of regional stormwater facilities managed by the District in combination with stormwater facilities on Japs Olson property.

Through this collaborative planning effort Japs Olson and MCWD determined that, given the proposed configuration of the development, Japs Olson's preferred stormwater management plan would treat new parking lot runoff through filtration islands within the parking lot and that all other runoff from the principal facility at 7500 Excelsior Blvd. would need to be conveyed east to new constructed stormwater facilities on the ApplianceSmart

site. However, due to issues with grade, conveying the western 7.5 acres of the principal facility east to the ApplianceSmart site cannot be accomplished by gravity and would require stormwater lift stations to pump water north along Powell Road and east across Meadowbrook Road into the ApplianceSmart site.

It was also revealed that approximately 4 acres of Meadowbrook Road and adjacent private runoff could feasibly be diverted into the ApplianceSmart site, to provide treatment above that required by regulation.

Consistent with the executed Letter of Understanding the two parties discussed the opportunity to enter into an agreement (Attachment 2). An agreement has been drafted that would:

- Have Japs Olson construct stormwater facilities (parking filtration islands and filtration basins) on the ApplianceSmart site to satisfy Japs Olson's regulatory requirements for all but the western 7.5 acres of runoff. Japs Olson would design the basins in a manner that the District finds suitable for further wetland basin function, plantings and other enhancements;
- Have Japs Olson construct the Meadowbrook Road stormwater diversion, at its own cost, to provide an additional 4 acres of regional treatment not required by regulation;
- Have Japs Olson convey all residual greenspace and land underlying the filtration basin to MCWD at no cost to the District;
- Have MCWD allow Japs Olson to convey runoff from the western 7.5 acres of its principal facility into the District's regional facility planned at 325 Blake Road, once operational;
- Have MCWD assume maintenance obligations for the stormwater facility on the land conveyed by Japs Olson to the District.

The specifics of regulatory compliance with both the Erosion Control and Stormwater Management Rules are outlined below, as is the basis for an exception under the District's Variance Rule to allow a delay of 12-18 months in treating the runoff from the western 7.5 acres in the District's 325 Blake Road facility.

Rules Summary:

Erosion Control:

MCWD has Erosion Control authority for the City of St. Louis Park.

The District's Erosion Control rule is applicable for any project exceeding 5,000 square feet of soil disturbance or 50 cubic yards of excavation. The proposed project involves approximately 16.87 acres of disturbance within the City of St. Louis Park, the rule is triggered. The erosion and sediment control practices proposed for the project comply with MCWD standards. Erosion and sediment control best management practices (BMPs) provided include: silt fence, bio-logs, rock construction entrances, concrete washout locations, inlet protection, seeding, sodding, and vegetation protection, where applicable. The proposed erosion control plan meets the MCWD's rule.

Stormwater Management:

MCWD has Stormwater Management authority for the City of St. Louis Park.

As outlined above, in accordance with the MCWD's Stormwater rule, the project must provide abstraction of the first one inch of runoff from the site's proposed impervious surface, for the properties in aggregate. Table 1 above summarizes the existing and proposed impervious surface of the project.

As mentioned previously, the development consists of two stages. Phase one consists of a reduction in impervious surface on the western, ApplianceSmart parcel. This will include the construction of a filtration basin and filtration medians to treat all of the runoff from the ApplianceSmart Parcel, 11.9 acres of the Japs Olson roof from the eastern parcel, and an additional 3.6 acres of Meadowbrook road.

The second phase will encompass an expansion of the main facility on the westerly portion of the site. The expansion will include approximately 1.0 acres of new impervious surface. Stormwater associated with phase two will be routed to the new 325 Blake road facility (Attachment 4). Phase two of the project will have 7.5 acres of stormwater diverted through the Powell Road diversion project to 325 Blake Road Stormwater Facility. Currently the 325 Blake Road Stormwater Facility is proposed to have a filtration basin located on site.

Filtration has been selected as the primary stormwater treatment methodology versus infiltration. This is based on the presence of soil identified with contaminants, including: polynuclear aromatic hydrocarbons (PAHs), lead,

barium, and arsenic, exceeding the Minnesota Pollution Control Agency (MPCA) Tier 1 Soil Leaching Values (SLVs) within the proposed pond areas. The MPCA Tier 1 SLVs are established to evaluate the potential risk to groundwater based on the soil-to-groundwater leaching pathway. Based on the presence of these contaminants, infiltration is not an acceptable stormwater treatment technique. Therefore, the applicant will provide the abstraction necessary to satisfy the volume control requirement through a combination of filtration practices. Additionally, the filtration basins will incorporate a liner to prevent soil-to-groundwater interaction. The filtration practices consist of three filtration medians in the proposed 5.25-acre parking lot on the ApplianceSmart site which, along with 3.6 acres of Meadowbrook Road drainage and 11.9 acres of Japs-Olson roof drainage, will flow to regional filtration basins with a pre-treatment basin located along the northern and eastern portions of the ApplianceSmart site. Finally, all filtration facilities incorporated into the site will meet the freeboard requirement outlined in the District's Stormwater Management rule.

Table 2 below outlines the required abstraction volume for the Japs Olson site and the abstraction volume provided by the BMPs.

Abstraction Volumes for Stormwater runoff directed to Filtration Basins and Pre-Treatment Pond				
Project Area	Imp. Surface. (ac)	Required (ac-ft)	Provided (ac-ft)	BMP
Japs Olson Roof	11.9	2.0	3.1(1)	Filtration Basin
Japs Olson Parking Lot	5.3	0.4	0.5	Filtration Medians
Japs Olson to 325 Blake Rd. Facility	7.5	1.3	1.3 (2)	325 Blake Road Filtration Basin
Required Japs Olson Project Total	**24.6**	**3.7**	**4.9**	
Meadowbrook Rd. Drainage	3.6	0.6	3.1(1)	Filtration Basin
Drainage Area Totals	**28.2**	**4.3**	**4.9**	

Table 2: Abstraction Values

(1) Filtration Basin provides treatment for Japs Olson Roof and Meadowbrook Road if it were to be redeveloped; not included in the Drainage Area Totals.
(2) 325 Blake Road filtration basin is to be built in 2018

As a result of the full project development an additional 0.6 ac-ft of volume control is provided and meets the stormwater requirements. In addition, the project will also provide the following load reductions:

Phosphorus Loading from Project Sited				
Project Area	Existing (lbs)	Proposed (lbs)	Reduction (lbs)	BMP
Japs Olson Roof.	17.6	8.8	8.8(1)	Filtration Basin
Japs Olson Parking Lot	13.4	4.4	9.0	Filtration Medians/Reduction of Impervious
Japs Olson Uncaptured	1.4	1.4	0	
Japs Olson to 325 Blake Rd. Facility	10.0	5.0	5.0 (2)	325 Blake Road Filtration Basin
Japs Olson Project Total	**42.4**	**19.6**	**22.8**	
Meadowbrook Rd. Drainage	4.8	2.4	2.4(1)	Filtration Basin
Project Drainage Area Totals	**47.2**	**22.0**	**25.2**	

Table 3: Phosphorus Load Reductions

(1) Filtration Basin provides treatment for Japs Olson Roof and Meadowbrook Rd.
(2) 325 Blake Road filtration basin is to be built in 2018

The implementation of whole project will result in loading to Minnehaha Creek to be reduced by 25.2lbs/yr. The project as part of phase one will implement the regional facility on the ApplianceSmart site which will provide an additional 11.2 lbs/yr prior to the construction of phase two which is when the Japs Olson roof would be required to be treated.

Additionally the project will meet district rate control requirements:

Phase 1 Rate Control:

	Outlet	Flow (cfs)		
		1 yr	10 yr	100 yr
Existing Condition	To Minnehaha Creek	60.0	110.9	201.1
Proposed Condition	To Minnehaha Creek	0.7	9.4	104.7

Table 4: Phase 1 Rate Control

Phase 2 at the 325 Blake Road Stormwater Facility will be required to meet the following rates.

Phase 2	Drainage Area	1 yr	10 yr	100 yr
Existing Condition	To Minnehaha Creek	26.5	49.1	88.2

Table 5: Phase 2 Rate Control Requirements

The tables above demonstrate that even with the implementation of phase one of the project the site will provide rate control which would meet the District requirements for the whole site.

As the tables above noted, the project will meet the District's stormwater requirements for volume, phosphorus and rate control.

Exception:
Japs Olson seeks an exception under the District's Variance Rule from the requirement that stormwater management facilities be operational contemporaneous to the construction of hard surface that requires them. An exception may be granted if the proposed alternative approach would "achieve a greater degree of water resource protection" than strict compliance with the rules.

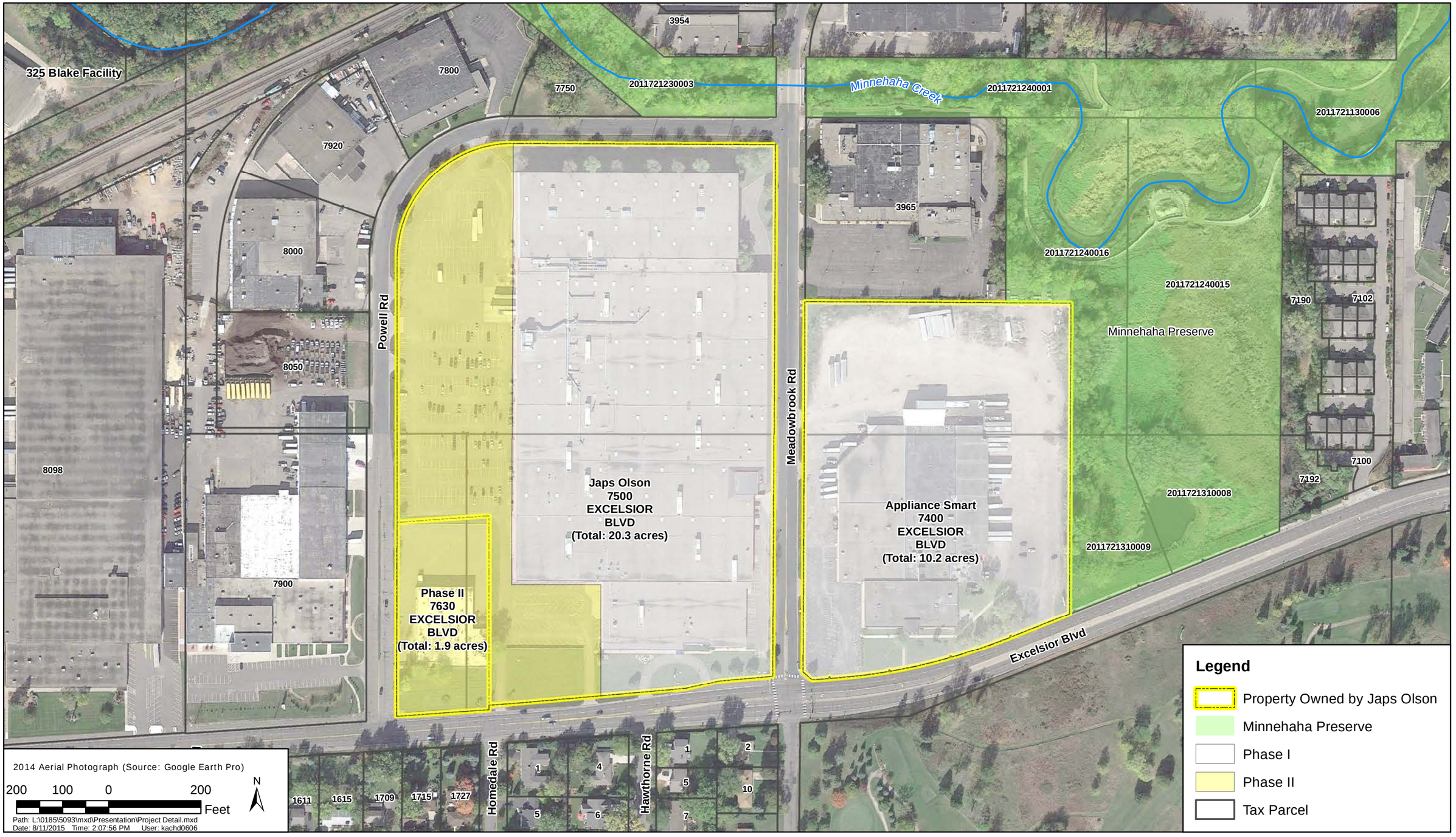
The 7.5 acres of redeveloped hard surface on the western part of the Japs-Olson property is scheduled, as Phase 2 work, to be constructed in 2016-17. However the District doesn't plan to construct and place the 325 Blake Road Stormwater Facility in operation until 2018. Japs Olson is proposing to construct the Meadowbrook Road diversion, summarized in Tables 2 and 3 above, to achieve an additional 4 acres of regional treatment beyond that required by regulation. This design consists of multiple basins that serve to partition runoff with higher total suspended solids, disperse filtration over multiple basins, manage rate and provide for a basin complex that will mimic wetland function and value. This design will also best complement the District's investment in the Minnehaha Preserve, immediately adjacent to the Japs Olson facility. This additional 2.4 pounds of treatment annually will be achieved in each future year, and the stormwater that will be treated is presently untreated roadway and commercial hard surface that now discharges directly into Minnehaha Preserve. Also, the basin, expected to be operational before Spring 2016, will remove 8.8 pounds of phosphorus annually from roof surface that otherwise would not be treated until Phase 2 is completed.

Staff finds that stormwater treatment for the Japs Olson redevelopment as described above and in more detail in the proposed agreement meets the exception standard.

Conclusion:
The project as proposed meets the District's Erosion Control rule and Stormwater Management rule, apart from the requirement of contemporaneous treatment under the latter. Based on the justification that has been provided, staff is recommending approval of an exception to the Stormwater Management Rule to allow this variation.

Figures:
1. Project Detail
2. Project Phasing
3. Existing Drainage Conditions
4. Proposed Drainage Conditions

Attachments:
1. Project Site Plans and Specifications
2. MCWD and Japs Olson Cooperative Agreement



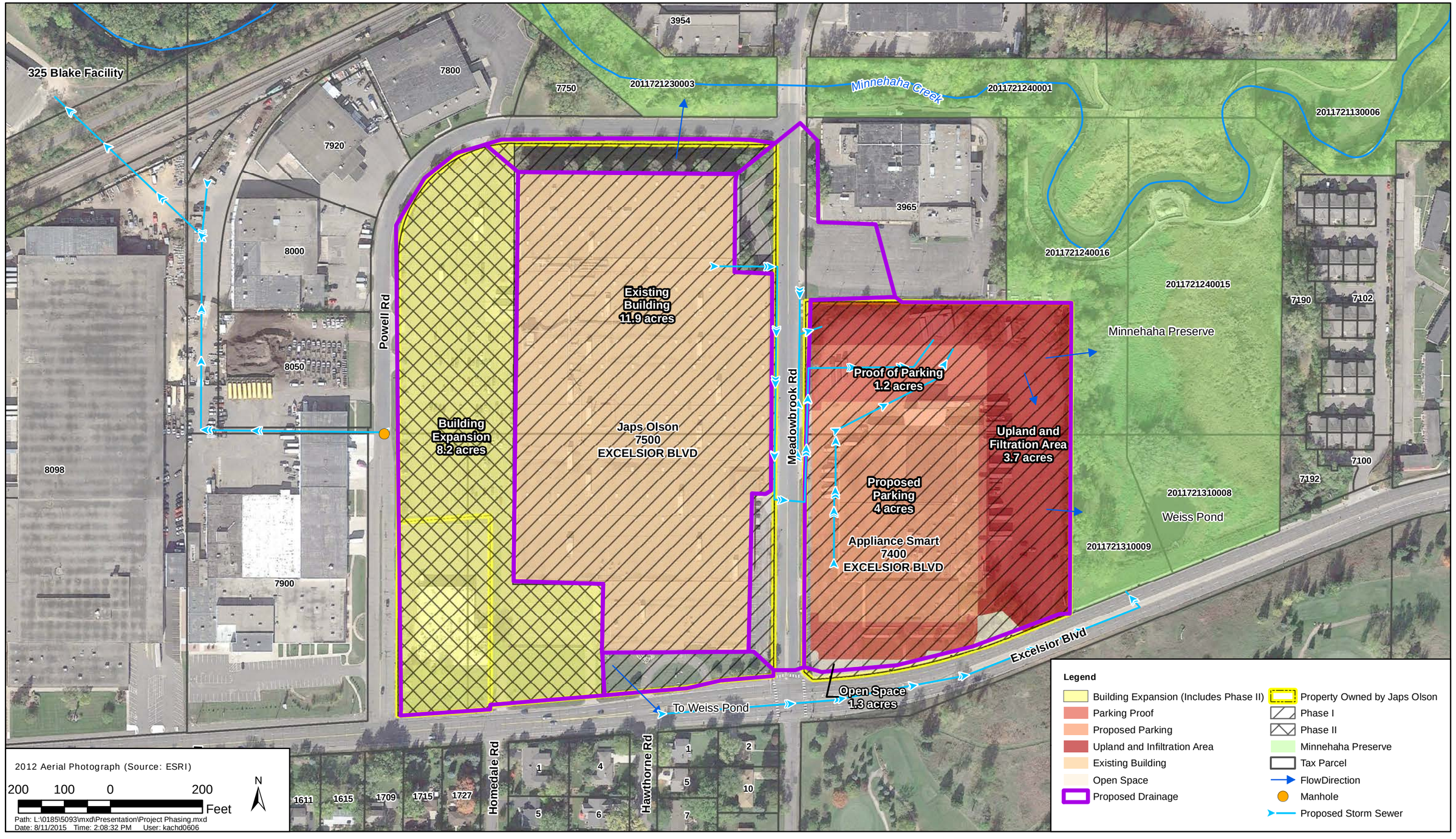
MINNEHAHA CREEK WATERSHED DISTRICT

Project Detail

WENCK ASSOCIATES
Responsive partner. Exceptional outcomes.

AUG 2015

Figure 1



MINNEHAHA CREEK WATERSHED DISTRICT

Project Phasing

WENCK ASSOCIATES
Responsive partner. Exceptional outcomes.

AUG 2015

Figure 2

EARTHWORK PACKAGE

FOR THE PROPOSED

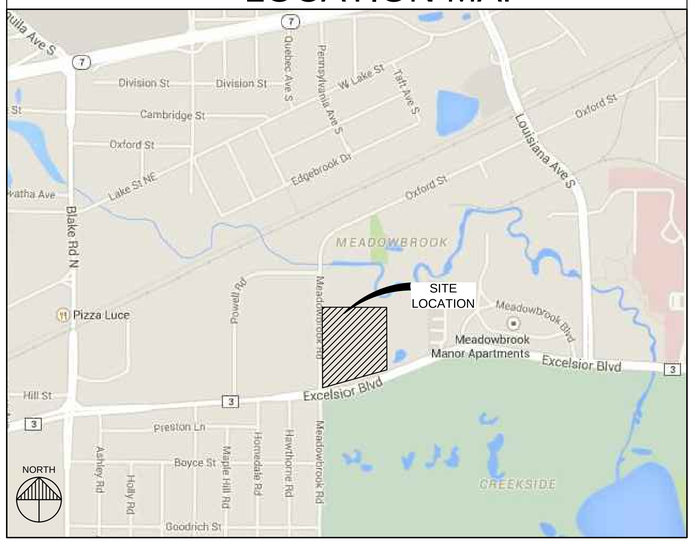
EAST PARKING LOT ADDITION

TO SERVE

JAPS-OLSON COMPANY

ST. LOUIS PARK, MN

LOCATION MAP



DRAWING INDEX

SHEET NO.	TITLE
C000	TITLE SHEET / DRAWING INDEX
C100	EXISTING CONDITIONS AND REMOVALS PLAN
C200	GRADING AND DRAINAGE PLAN
C250	EROSION CONTROL PLAN
C300	SITE, PAVING AND UTILITY PLAN
C400-C403	CIVIL DETAILS
C500	STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

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Plymouth, MN 55441
763.559.9100
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info@vaaeng.com

CLIENT:

JAPS-OLSON COMPANY

Japs-Olson Company
Direct mail and commercial print

PROJECT:

PROPOSED EAST PARKING LOT ADDITION
JAPS-OLSON COMPANY
ST. LOUIS PARK, MN

NO	DATE	ISSUE/REVISION	BY
0	06/19/15	ISSUED FOR BID	MAP

CERTIFICATION:

BID DOCUMENTS
NOT FOR CONSTRUCTION

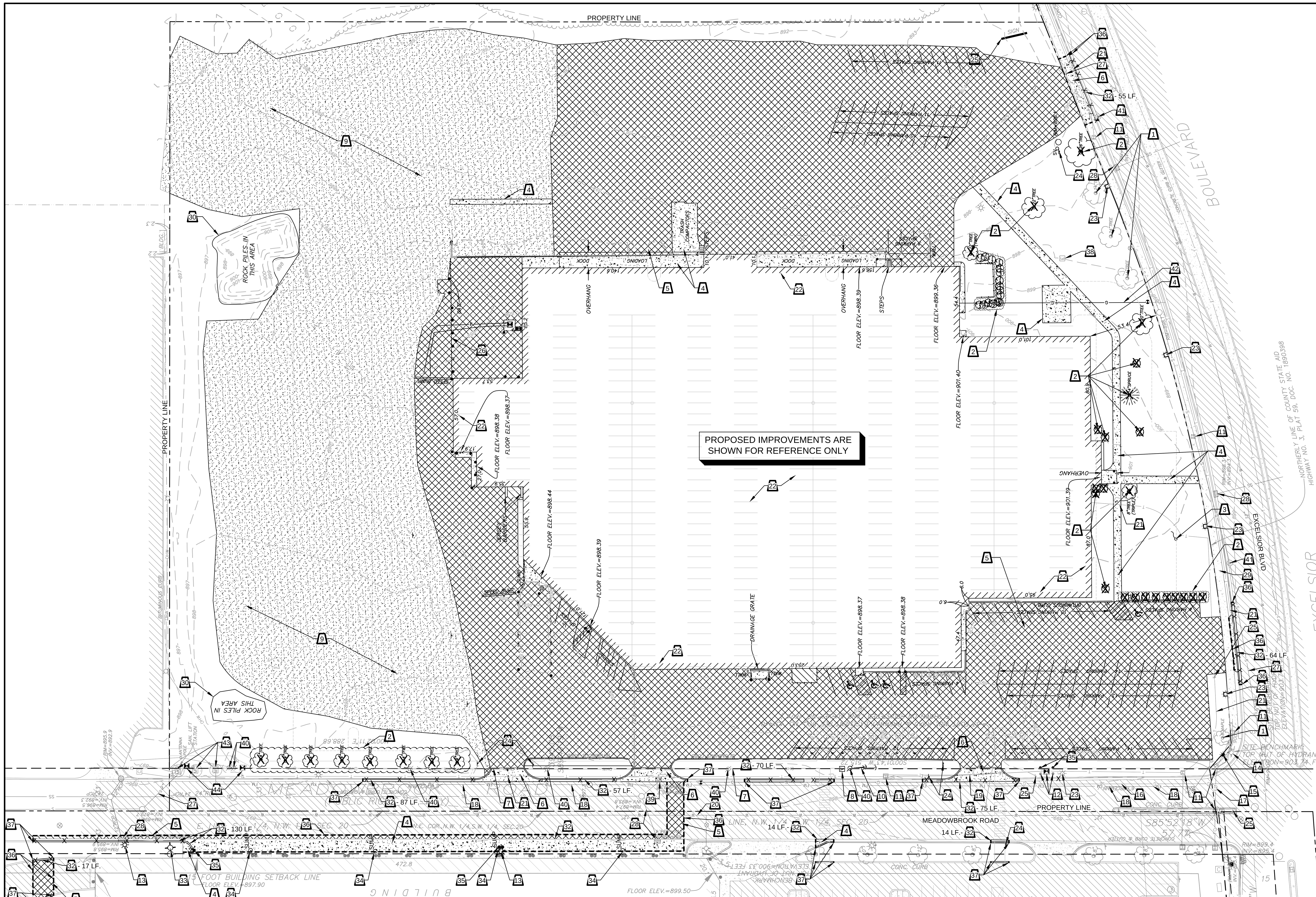
DATE:	DRAWN:	
06/19/15	AJR	
DESIGNED: ARL	CHECKED:	APPROVED:

DRAWING TITLE:

TITLE SHEET / DRAWING INDEX

PROJECT NO:	DRAWING NO:
140218	C000
SCALE: AS NOTED	

Date Plotted: Friday, June 19, 2015



**IF ANY CITY STREET SIGNS ARE REMOVED DURING CONSTRUCTION, THEY SHOULD BE REINSTALLED IN THE SAME LOCATION PER DETAIL M-1/C402

THE EXISTING WATER AND SEWER SERVICES SHALL BE DISCONNECTED AT THE MAIN WHEN THEY ARE REMOVED.

ALL CURB REMOVAL LENGTHS NOTED ARE APPROXIMATE, CURB REMOVAL SHALL BE DONE TO THE NEAREST JOINT

CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLAN TO OWNER AND ENGINEER FOR REVIEW PRIOR TO MOBILIZATION. SEE SPECIFICATIONS FOR FURTHER DETAIL

* CONTRACTOR SHALL COORDINATE WITH GEOTECHNICAL ENGINEER ABOUT SALVAGING EXISTING GRAVEL, BITUMINOUS AND CONCRETE PAVEMENTS AND UNDERLYING AGGREGATE BASE FOR POTENTIAL REINSTALLATION INTO PROJECT. SEE SPECIFICATIONS FOR FURTHER INFORMATION

NORTH

1 / C100 EXISTING CONDITIONS AND REMOVALS PLAN

1"= 40'

0 40' 80' 120'

KEYNOTES

No.	Keynote
1	EXISTING TREES TO REMAIN
2	EXISTING TREES TO BE REMOVED AND DISPOSED OFFSITE
3	EXISTING FLAGPOLE TO BE REMOVED AND DISPOSED OFFSITE
4	EXISTING CONCRETE PAVEMENT TO BE REMOVED*
5	EXISTING BITUMINOUS PAVEMENT TO BE REMOVED*
6	EXISTING SITE ENTRANCE TO BE REMOVED*
7	EXISTING OVERHEAD ELECTRIC LINE TO REMAIN
8	EXISTING UTILITY VAULT TO REMAIN
9	EXISTING GRAVEL PAVEMENT TO BE REMOVED*
10	EXISTING GUY WIRES TO REMAIN
11	EXISTING HANDHOLE TO REMAIN
12	EXISTING ELECTRICAL BOX AND BOLLARDS TO REMAIN
13	EXISTING LIGHT POLE TO BE REMOVED AND REINSTALLED IN ORIGINAL LOCATION. COORDINATE WITH OWNER AND UTILITY
14	EXISTING HYDRANT TO REMAIN
15	EXISTING TRAFFIC LIGHT TO REMAIN
16	EXISTING GAS LINE TO REMAIN
17	EXISTING FIBER OPTIC LINE TO REMAIN
18	EXISTING FORCE MAIN LINE TO REMAIN
19	EXISTING ELECTRIC LINE TO REMAIN
20	EXISTING WATERLINE TO REMAIN
21	EXISTING TELEPHONE LINE TO REMAIN
22	EXISTING BUILDING AND ALL APPURTENANCES TO REMOVED AND DISPOSED OFFSITE
23	EXISTING LIGHT POLE TO REMAIN
24	EXISTING SIGN TO BE REMOVED**
25	EXISTING SIGN TO REMAIN
26	EXISTING FENCE TO BE REMOVED
27	EXISTING SANITARY SEWER LINE TO REMAIN
28	EXISTING CATCH BASIN AND STORM SEWER TO REMAIN
29	EXISTING CONCRETE TO REMAIN
30	EXISTING ROCK PILE TO BE REMOVED AND DISPOSED OFFSITE
31	BULKHEAD EXISTING STORM SEWER
32	EXISTING CURB AND GUTTER TO BE REMOVED
33	EXISTING HYDRANT TO BE RELOCATED. COORDINATE FINAL LOCATION WITH CITY
34	EXISTING PIPE TO REMAIN
35	EXISTING BOLLARD TO BE REMOVED, SALVAGED AND REINSTALLED IN ORIGINAL LOCATION
36	SAWCUT TO REMOVE EXISTING PAVEMENT
37	SAWCUT TO REMOVE EXISTING CURB
38	EXISTING ELECTRICAL BOX TO BE RELOCATED/MODIFIED TO ACCOMMODATE PROPOSED GRADING IMPROVEMENTS. COORDINATE WITH OWNER AND UTILITY. NOTIFY ENGINEER IMMEDIATELY WITH ANY DISCREPANCIES
39	EXISTING CATCH BASIN TO BE MODIFIED. SEE SHEET C200. EXISTING GRATE AND FRAME TO BE SALVAGED
40	EXISTING POWER POLE TO REMAIN
41	EXISTING WATER MANHOLE TO REMAIN
42	EXISTING GAS LINE TO BE REMOVED AND CAPPED AT R.O.W., COORDINATE WITH UTILITY
43	EXISTING LIFT STATIONS TO REMAIN
44	EXISTING ELECTRICAL BOX TO REMAIN

GENERAL NOTES

1. ALL EXISTING INFORMATION TAKEN FROM SURVEY BY EFN EGAN, FIELD & NOWAK, INC., PROJECT NUMBER 35886, DATED JUNE 3, 2014.
2. SITE PLAN INFORMATION TAKEN FROM DRAWING PROVIDED BY STEVE FICHTEL ARCHITECTS, PROJECT 7400-PKG-5-5-2015 EM.DWG, DATED MAY 5, 2015.
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6. CONTRACTOR TO PROTECT FROM DAMAGE ALL EXISTING IMPROVEMENTS, LANDSCAPING, STRUCTURES AND UTILITIES THAT ARE TO REMAIN. CONTRACTOR TO REPAIR ANY DAMAGE AT OWN EXPENSE.
7. ALL WORK TO CONFORM WITH CITY OF ST. LOUIS PARK AND STATE OF MINNESOTA STANDARDS AND REGULATIONS.
8. ALL EXCAVATIONS MUST COMPLY WITH THE REQUIREMENTS OF OSHA 29 CFR, PART 1926, SUBPART P "EXCAVATIONS AND TRENCHES". THIS DOCUMENT STATES THAT EXCAVATION SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. CATCHBASINS AND MANHOLES ARE SHOWN ON PLAN LARGER THAN ACTUAL SIZE. COORDINATE LOCATION OF MANHOLE COVER AND CASTING SO THAT IT IS PROPERLY LOCATED AT THE BACK OF CURBLINE FOR THE CURB INLETS OR CENTERED IN THE AREA AS SHOWN ON THE PLAN FOR THE AREA DRAINS AND MANHOLE COVERS.
10. FLARED END SECTIONS (FES) ARE SHOWN ON PLAN LARGER THAN ACTUAL SIZE. ALL PIPE LENGTHS INCLUDE FES. CONTRACTOR/SURVEYOR TO STAKE THE END OF FES FOR LOCATION.
11. PROVIDE TRAFFIC CONTROL AT STREETS AND SIDEWALKS PER CITY OF ST. LOUIS PARK AND MMUTCD REQUIREMENTS.
12. ANY WORK PERFORMED OUTSIDE THE PROPERTY BOUNDARIES MUST BE APPROVED BY OWNER AND ALL REGULATING GOVERNMENT AGENCIES AND APPROPRIATE PERMITS MUST BE OBTAINED.

DEMO NOTES

1. ALL UTILITY DEMOLITION AND/OR ABANDONMENT TO BE PERFORMED IN ACCORDANCE WITH CITY OF ST. LOUIS PARK AND STATE OF MINNESOTA REGULATIONS AND STANDARDS.
2. EXISTING KNOWN UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY THE LOCATION OF ALL EXISTING PUBLIC AND PRIVATE UTILITIES WHICH MAY INCLUDE BUT IS NOT LIMITED TO: ELECTRIC, TELEPHONE, GAS, CABLE TV, COMPUTER CABLE, FIBER OPTIC CABLE, SANITARY SEWER, STORM SEWER AND WATERMAIN. CONTRACTOR TO CONTACT MINNESOTA GOPHER STATE ONE CALL BEFORE EXCAVATING.
3. ALL ELECTRICAL POLE AND LIGHT REMOVAL SHALL BE COORDINATED WITH THE OWNER AND AUTHORITY HAVING JURISDICTION PRIOR TO DEMOLITION.

LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- PROPERTY LINE
- RIGHT OF WAY LINE
- SECTION LINE
- ADJACENT PROPERTY LINE
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER (FORCEMAIN)
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD ELECTRIC
- EXISTING FIBER OPTIC
- EXISTING TREE LINE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING HANDHOLE
- EXISTING UTILITY VAULT
- EXISTING METAL COVER
- EXISTING ELECTRIC BOX
- EXISTING CATCH BASIN
- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING COMMUNICATION BOX
- EXISTING WATER MANHOLE
- EXISTING TREE
- EXISTING LIGHT POLE
- EXISTING BOLLARD
- EXISTING PIPE
- EXISTING BITUMINOUS PAVEMENT
- EXISTING CONCRETE PAVEMENT
- EXISTING TREE TO BE REMOVED
- EXISTING SIGN TO BE REMOVED
- EXISTING SPRINKLER VALVE TO BE REMOVED
- EXISTING FLAGPOLE TO BE REMOVED
- EXISTING FENCE TO BE REMOVED
- EXISTING GAS LINE TO BE REMOVED
- EXISTING CURB AND GUTTER TO BE REMOVED
- EXISTING BITUMINOUS PAVEMENT TO BE REMOVED
- EXISTING CONCRETE PAVEMENT TO BE REMOVED
- EXISTING GRAVEL PAVEMENT TO BE REMOVED

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CERTIFICATION:

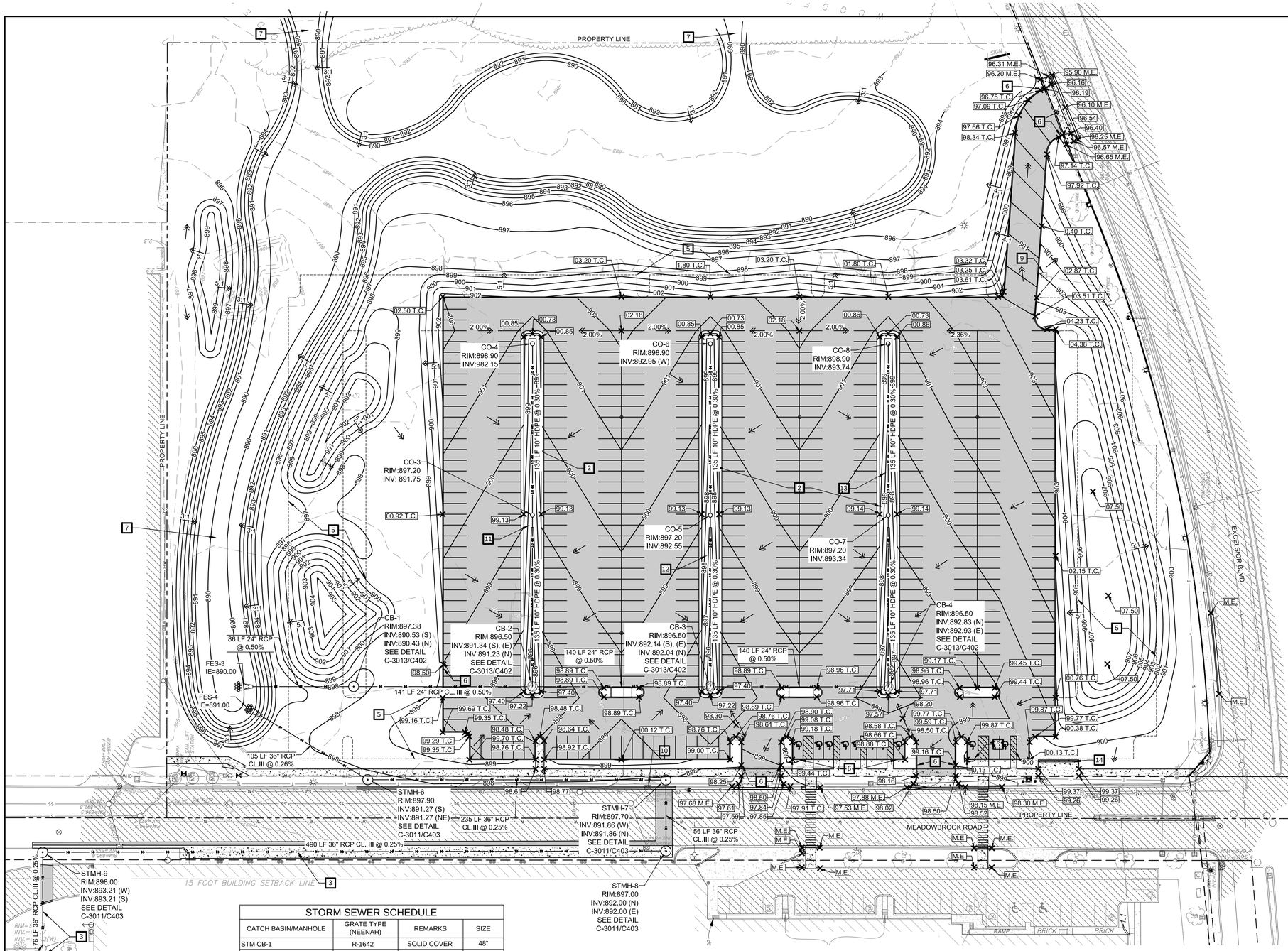
BID DOCUMENTS
NOT FOR CONSTRUCTION

DATE: 06/19/15 | DRAWN: AJR
DESIGNED: ARL | CHECKED: | APPROVED:

DRAWING TITLE:
EXISTING CONDITIONS AND REMOVALS PLAN

PROJECT NO: 140218
SCALE: AS NOTED
DRAWING NO: C100

Date Plotted: Friday, June 19, 2015



STORM SEWER SCHEDULE

CATCH BASIN/MANHOLE	GRATE TYPE (NEENAH)	REMARKS	SIZE
STM CB-1	R-1642	SOLID COVER	48"
STM CB-2	R-4342	INLET	48"
STM CB-3	R-4342	INLET	48"
STM CB-4	R-4342	INLET	48"
STM MH-6	R-1642	SOLID COVER	60"
STM MH-7	R-1642	SOLID COVER	84"
STM MH-8	R-1642	SOLID COVER	84"
STM MH-9	R-1642	SOLID COVER	84"

FOR FURTHER INFORMATION ON LANDSCAPING AND LIGHTING DESIGN, SEE PLANS PREPARED BY OTHERS

SEE DETAIL C-3028/C401 FOR FURTHER DETAIL ON DRAINTILE CLEANOUTS

CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLAN TO OWNER AND ENGINEER FOR REVIEW PRIOR TO MOBILIZATION. SEE SPECIFICATIONS FOR FURTHER DETAIL

NORTH

1 C200 GRADING AND DRAINAGE PLAN

1"= 40'

0 40' 80' 120'

KEYNOTES	
1	NOT USED
2	PROPOSED STORMWATER FILTRATION AREA, SEE DETAIL C-3023/C402
3	INSULATE PIPE PER DETAIL C-4012/C402 (ENTIRE 36" PIPE)
4	CONNECT TO EXISTING STORM STRUCTURE INV ELEV: 893.40. PATCH EXISTING MANHOLE AS REQUIRED. PROVIDE WATERTIGHT CONNECTION. ENSURE POSITIVE DRAINAGE TO THIS INVERT FROM ALL EXISTING PIPE CONNECTIONS
5	FUTURE SITE IMPROVEMENTS
6	BEAVERTAIL CURB
7	STORMWATER AREA NORTH AND EAST OF PARKING LOT INTERIM DESIGN BY MCWD IS SHOWN AND SUBJECT TO CHANGE

KEYNOTES	
8	NOT USED
9	EXISTING ELECTRICAL BOX TO BE RELOCATED/MODIFIED TO ACCOMMODATE PROPOSED GRADING IMPROVEMENTS. COORDINATE WITH OWNER AND UTILITY. NOTIFY ENGINEER IMMEDIATELY WITH ANY DISCREPANCIES
10	MODIFY EXISTING CATCH BASIN TO ACCOMMODATE NEENAH R-3067L CASTING OR APPROVED EQUAL AND MATCH GRADE. CONTRACTOR TO VERIFY SIZE PRIOR TO CONSTRUCTION
11	PROPOSED STORMWATER FILTRATION BOTTOM ELEV=895.50
12	PROPOSED STORMWATER FILTRATION BOTTOM ELEV=895.50
13	PROPOSED STORMWATER FILTRATION BOTTOM ELEV=895.50
14	PROPOSED BIKE RACK

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GRADING NOTES

1. PROPOSED SPOT ELEVATIONS AND CONTOURS ARE TO TOP OF GRADE, PAVEMENT OR GUTTER LINE, UNLESS OTHERWISE SPECIFIED.
2. SEE SWPPP SHEET C500 FOR EROSION PREVENTION AND SEDIMENT CONTROL NOTES.
3. SEE SHEET C250 FOR LOCATIONS OF EROSION AND SEDIMENT CONTROL ITEMS. INSTALL PERIMETER EROSION AND SEDIMENT CONTROL ITEMS PRIOR TO CONSTRUCTION.

LEGEND

- 900 — PROPOSED CONTOUR
- 34.36 — PROPOSED SPOT ELEVATION
- 98.36 M.E. — PROPOSED MATCH EXISTING SPOT ELEVATION
- 99.36 T.C. — PROPOSED TOP OF CURB SPOT ELEVATION
- 98.86 B.C. — PROPOSED BOTTOM OF CURB SPOT ELEVATION
- 2.00% — DENOTES SURFACE DRAINAGE
- PROPOSED FES
- PROPOSED CATCH BASIN
- PROPOSED CLEANOUT
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED CURB AND GUTTER
- FUTURE SITE IMPROVEMENTS
- 901 — MAJOR CONTOUR
- 900 — MINOR CONTOUR
- PROPERTY LINE
- RIGHT OF WAY LINE
- SECTION LINE
- ADJACENT PROPERTY LINE
- W — EXISTING WATERMAIN
- SS — EXISTING STORM SEWER
- S — EXISTING SANITARY SEWER
- FM — EXISTING SANITARY SEWER (FORCEMAIN)
- E — EXISTING UNDERGROUND ELECTRIC
- G — EXISTING UNDERGROUND GAS
- T — EXISTING UNDERGROUND TELEPHONE
- OHW — EXISTING OVERHEAD ELECTRIC
- FO — EXISTING FIBER OPTIC
- EXISTING TREE LINE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING HANDHOLE
- EXISTING UTILITY VAULT
- EXISTING METAL COVER
- EXISTING ELECTRIC BOX
- EXISTING CATCH BASIN
- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING COMMUNICATION BOX
- EXISTING WATER MANHOLE
- EXISTING TREE
- EXISTING LIGHT POLE
- EXISTING BOLLARD
- SUMP — EXISTING PIPE
- EXISTING BITUMINOUS PAVEMENT
- EXISTING CONCRETE PAVEMENT

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JAPS-OLSON COMPANY
ST. LOUIS PARK, MN

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06/19/15	AJR

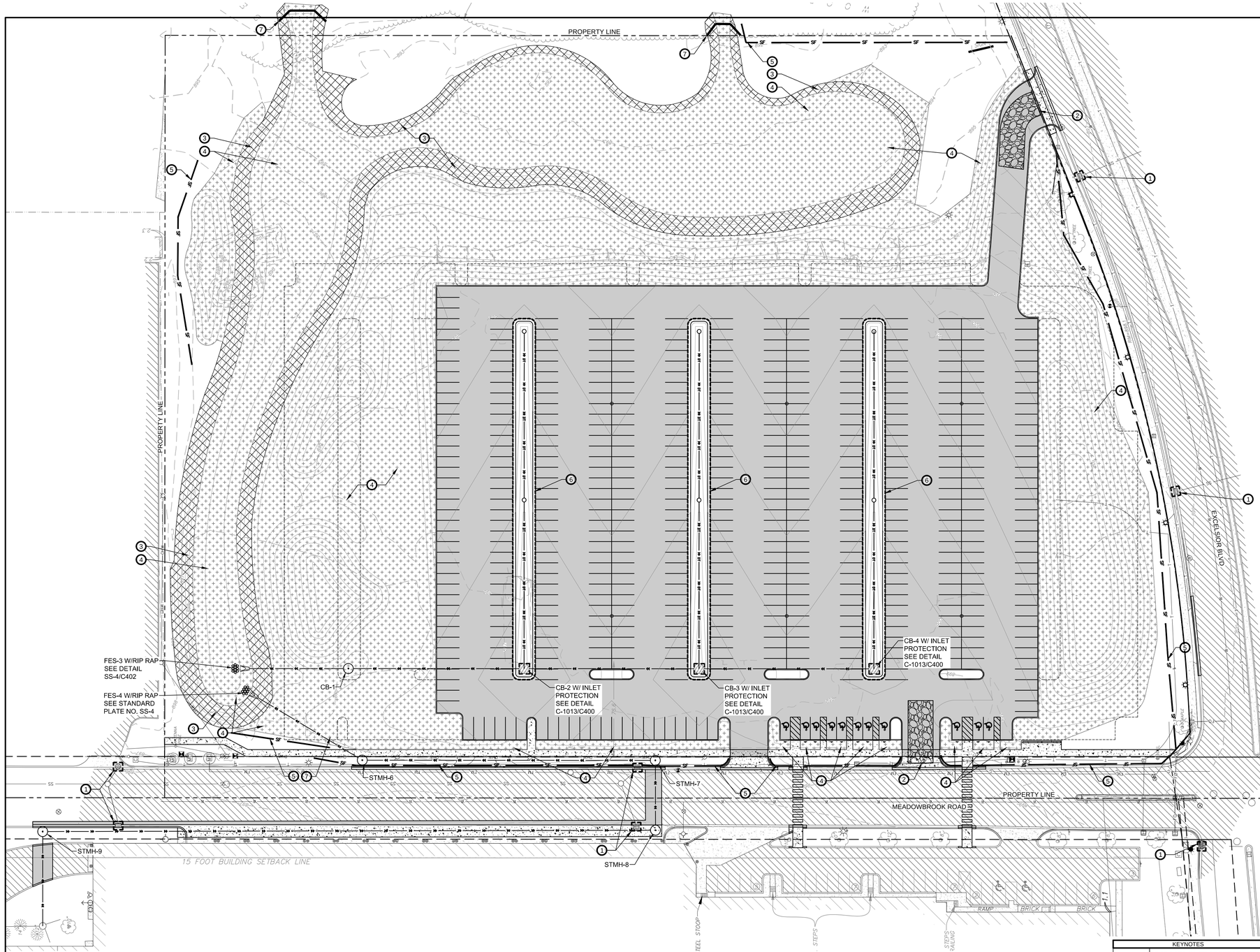
DESIGNED:	CHECKED:	APPROVED:
ARL		

DRAWING TITLE:

GRADING AND DRAINAGE PLAN

PROJECT NO:	DRAWING NO:
140218	C200
SCALE: AS NOTED	

Date Plotted: Friday, June 19, 2015



NORTH

1 C250 EROSION CONTROL PLAN

0 40' 80' 120'

1"= 40'

KEYNOTES	
1	PROPOSED INLET PROTECTION AT EXISTING CATCHBASIN, SEE DETAIL C-1008/C400
2	ROCK CONSTRUCTION ENTRANCE SEE DETAIL C-1005/C400
3	EROSION CONTROL BLANKET AND SEEDING, SEE DETAIL C-1000/C400 AND EROSION CONTROL NOTE #1
4	SEEDING, SEE EROSION CONTROL NOTE #1
5	SILT FENCE, SEE DETAIL C-1002/C400
6	606 LF ROCK LOG PERIMETER CONTROL, SEE DETAIL C-1004/C400
7	BIOROLL, SEE DETAIL C1009/C400

FOR FURTHER INFORMATION ON LANDSCAPING AND LIGHTING DESIGN, SEE PLANS PREPARED BY OTHERS

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EROSION CONTROL

1. CONTRACTOR TO RESTORE ALL AREAS OUTSIDE OF PAVING. SEEDING AND FERTILIZER PER SECTIONS 3876 AND 3881 IN MNDOT SPECIFICATIONS, MULCH PER SECTION 3882 IN MNDOT SPECIFICATIONS, UNLESS INDICATED OTHERWISE ON LANDSCAPE PLAN.
2. SEE SWPPP C500 FOR EROSION PREVENTION AND SEDIMENT CONTROL NOTES.

LEGEND

- PROPOSED CONTOUR
- PROPOSED FES W/ RIP RAP
- PROPOSED FES W/ INLET PROTECTION
- PROPOSED CATCH BASIN INLET PROTECTION
- PROPOSED CLEANOUT
- PROPOSED BIOROLL
- PROPOSED ROCK LOG
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED SILT FENCE
- LIMITS OF DISTURBANCE
- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED SEEDING AND MULCH
- PROPOSED CURB AND GUTTER
- FUTURE SITE IMPROVEMENTS
- MAJOR CONTOUR
- MINOR CONTOUR
- PROPERTY LINE
- RIGHT OF WAY LINE
- SECTION LINE
- ADJACENT PROPERTY LINE
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER (FORCEMAIN)
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD ELECTRIC
- EXISTING FIBER OPTIC
- EXISTING TREE LINE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING HANDHOLE
- EXISTING UTILITY VAULT
- EXISTING METAL COVER
- EXISTING ELECTRIC BOX
- EXISTING CATCH BASIN
- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING COMMUNICATION BOX
- EXISTING WATER MANHOLE
- EXISTING TREE
- EXISTING LIGHT POLE
- EXISTING BOLLARD
- EXISTING PIPE
- EXISTING BITUMINOUS PAVEMENT
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DESIGNED: ARL	CHECKED:	APPROVED:

DRAWING TITLE:

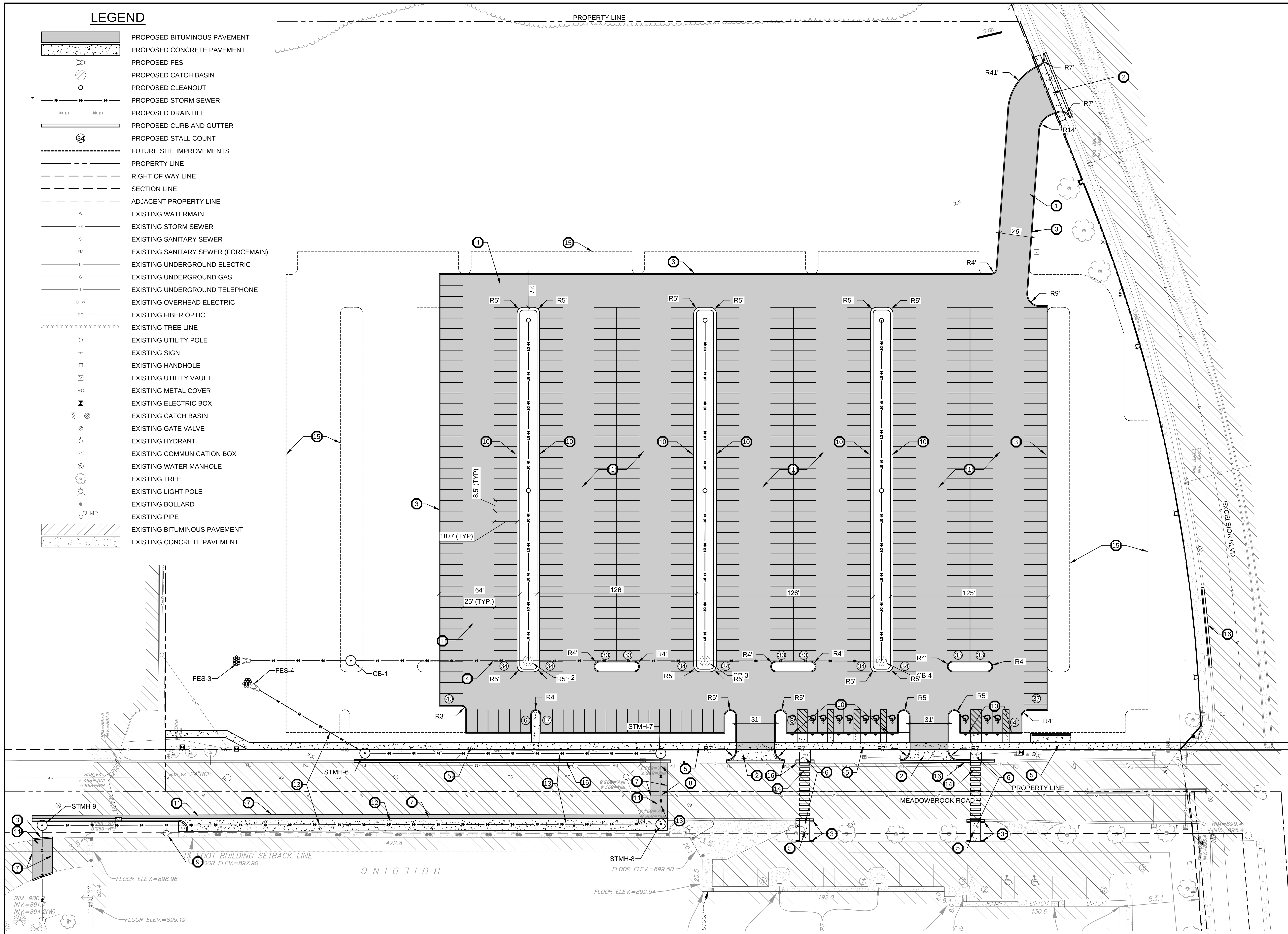
EROSION CONTROL PLAN

PROJECT NO:	DRAWING NO:
140218	C250
SCALE: AS NOTED	

Date Plotted: Friday, June 19, 2015

LEGEND

- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED FES
- PROPOSED CATCH BASIN
- PROPOSED CLEANOUT
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED CURB AND GUTTER
- PROPOSED STALL COUNT
- FUTURE SITE IMPROVEMENTS
- PROPERTY LINE
- RIGHT OF WAY LINE
- SECTION LINE
- ADJACENT PROPERTY LINE
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER (FORCEMAIN)
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD ELECTRIC
- EXISTING FIBER OPTIC
- EXISTING TREE LINE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING HANDHOLE
- EXISTING UTILITY VAULT
- EXISTING METAL COVER
- EXISTING ELECTRIC BOX
- EXISTING CATCH BASIN
- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING COMMUNICATION BOX
- EXISTING WATER MANHOLE
- EXISTING TREE
- EXISTING LIGHT POLE
- EXISTING BOLLARD
- EXISTING PIPE
- EXISTING BITUMINOUS PAVEMENT
- EXISTING CONCRETE PAVEMENT



FOR FURTHER INFORMATION ON LANDSCAPING AND LIGHTING DESIGN, SEE PLANS PREPARED BY OTHERS

CONTRACTOR SHALL SUBMIT CONCRETE JOINTING PLAN TO ENGINEER PRIOR TO CONSTRUCTION

CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLAN TO OWNER AND ENGINEER FOR REVIEW PRIOR TO MOBILIZATION. SEE SPECIFICATIONS FOR FURTHER DETAIL

ALL EXISTING CURB REMOVALS ON MEADOWBROOK ROAD AND EXCELSIOR BLVD. SHALL BE REMOVED TO THE NEAREST JOINT. SEE C100 FOR FURTHER INFORMATION

THE LOCATIONS OF THE EXISTING WATER AND SEWER SERVICES TO EXISTING BUILDING TO BE DEMOLISHED ARE CURRENTLY UNKNOWN . A PRIVATE LOCATE SHALL BE PROVIDED PRIOR TO CONSTRUCTION TO DOCUMENT THE LOCATIONS OF THESE LINES. THESE SERVICES SHALL BE DISCONNECTED AT THE MAIN WHEN THEY ARE REMOVED

ALL CURB RELATED DIMENSIONS SHOWN ARE TO BACK OF CURB

NORTH

1 / C300 SITE, PAVING AND UTILITY PLAN

1"= 40'

0 40' 80' 120'

Date Plotted: Friday, June 19, 2015

GENERAL NOTES

1. ALL EXISTING INFORMATION TAKEN FROM SURVEY BY EFN EGAN, FIELD & NOWAK, INC., PROJECT NUMBER 35886, DATED JUNE 3, 2014.
2. SITE PLAN INFORMATION TAKEN FROM DRAWING PROVIDED BY STEVE FICHTEL ARCHITECTS, PROJECT 7400-PKG-5-5-2015 EM.DWG, DATED MAY 5, 2015.
3. SUBSURFACE GEOTECHNICAL INVESTIGATION BY BRAUN INTERTEC CORPORATION, PROJECT NUMBER B1500402.00, DATED FEBRUARY 27, 2015.
4. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS INCLUDING LOCATIONS OF EXISTING PUBLIC AND PRIVATE UTILITIES, AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING CONSTRUCTION.
5. ALL EXISTING UTILITIES AND OTHER IMPROVEMENTS ARE TO REMAIN UNLESS NOTED OTHERWISE.
6. CONTRACTOR TO PROTECT FROM DAMAGE ALL EXISTING IMPROVEMENTS, LANDSCAPING, STRUCTURES AND UTILITIES THAT ARE TO REMAIN. CONTRACTOR TO REPAIR ANY DAMAGE AT OWN EXPENSE.
7. ALL WORK TO CONFORM WITH CITY OF ST. LOUIS PARK AND STATE OF MINNESOTA STANDARDS AND REGULATIONS.
8. ALL EXCAVATIONS MUST COMPLY WITH THE REQUIREMENTS OF OSHA 29 CFR, PART 1926, SUBPART P "EXCAVATIONS AND TRENCHES". THIS DOCUMENT STATES THAT EXCAVATION SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. CATCHBASINS AND MANHOLES ARE SHOWN ON PLAN LARGER THAN ACTUAL SIZE. COORDINATE LOCATION OF MANHOLE COVER AND CASTING SO THAT IT IS PROPERLY LOCATED AT THE BACK OF CURBLINE FOR THE CURB INLETS OR CENTERED IN THE AREA AS SHOWN ON THE PLAN FOR THE AREA DRAINS AND MANHOLE COVERS.
10. FLARED END SECTIONS (FES) ARE SHOWN ON PLAN LARGER THAN ACTUAL SIZE. ALL PIPE LENGTHS INCLUDE FES. CONTRACTOR/SURVEYOR TO STAKE THE END OF FES FOR LOCATION.
11. PROVIDE TRAFFIC CONTROL AT STREETS AND SIDEWALKS PER CITY OF ST. LOUIS PARK AND MMUTCD REQUIREMENTS.
12. ANY WORK PERFORMED OUTSIDE THE PROPERTY BOUNDARIES MUST BE APPROVED BY OWNER AND ALL REGULATING GOVERNMENT AGENCIES AND APPROPRIATE PERMITS MUST BE OBTAINED.

UTILITY NOTES

1. ALL UTILITY DEMOLITION AND/OR ABANDONMENT TO BE PERFORMED IN ACCORDANCE WITH CITY OF ST. LOUIS PARK AND STATE OF MINNESOTA REGULATIONS AND STANDARDS.
2. EXISTING UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY THE LOCATION OF ALL EXISTING PUBLIC AND PRIVATE UTILITIES WHICH MAY INCLUDE BUT IS NOT LIMITED TO: ELECTRIC, TELEPHONE, GAS, CABLE TV, COMPUTER CABLE, FIBER OPTIC CABLE, SANITARY SEWER, STORM SEWER AND WATERMAIN. CONTRACTOR TO CONTACT MINNESOTA GOPHER STATE ONE CALL BEFORE EXCAVATING.
3. ALL ELECTRICAL POLE AND LIGHT REMOVAL SHALL BE COORDINATED WITH THE OWNER AND AUTHORITY HAVING JURISDICTION PRIOR TO DEMOLITION.
4. ALL PIPE LENGTHS INCLUDE LENGTHS OF FLARED ENDS
5. REMOVE ALL SOILS AND SEDIMENTS TRACKED OR OTHERWISE DEPOSITED ONTO PUBLIC AND PRIVATE PAVEMENT AREAS. REMOVAL SHALL BE ON A DAILY BASIS THROUGHOUT THE DURATION OF THE CONSTRUCTION. CLEAN PAVED ROADWAYS BY SHOVELING OR SWEEPING. STREET WASHING IS ALLOWED ONLY AFTER SHOVELING OR SWEEPING HAS REMOVED SEDIMENT. SEE CITY OF ST. LOUIS PARK STANDARDS AND REGULATIONS
6. PROVIDE THE FOLLOWING MINIMUM COVER OVER THE TOP OF PIPE AS FOLLOWS:
   A. 8' OVER WATERMAIN
   B. 8' OVER SANITARY SEWER
   C. 1.5' OVER STORM SEWER

KEYNOTES	
1	PROPOSED LIGHT DUTY BITUMINOUS PAVEMENT, SEE DETAIL C-5034/C403
2	PROPOSED SITE ENTRANCE, SEE STANDARD PLATE DETAIL ST-2/C402
3	PROPOSED CURB AND GUTTER, SEE DETAIL C-5030/C401
4	PROPOSED PAVEMENT MARKINGS, SEE DETAIL C-5085/C401
5	PROPOSED SIDEWALK, SEE STANDARD PLATE DETAIL ST-9/C402
6	PROPOSED PED RAMP. SEE DETAIL C-5014/C401
7	MILL AND OVERLAY, SEE DETAIL C-5022/C403
8	CONTRACTOR TO ENSURE 18" MINIMUM SEPARATION AT STORM SEWER/WATERMAIN CROSSING. PROVIDE INSULATION PER DETAIL C-4007/C402
9	RELOCATED FIRE HYDRANT WITH NEW GATE VALVE
10	RIBBON CURB, SEE DETAIL C-5090/C403
11	PROPOSED BITUMINOUS PAVEMENT. MATCH EXISTING SECTION AND ELEVATIONS. MINIMUM SECTION SHALL BE PER DETAIL C-5045/C403 "HEAVY DUTY"
12	PROPOSED CONCRETE PAVEMENT. MATCH EXISTING SECTION INCLUDING AGGREGATE BASE AND ELEVATIONS. PROVIDE DOWELS AT JOINT BETWEEN EXISTING AND PROPOSED CONCRETE, SEE DETAIL C-5073/C403
13	INSULATE ENTIRE LENGTH OF 36" STORM PIPE. SEE DETAIL C-4012/C402
14	PROPOSED CROSS WALK
15	PROPOSED IMPROVEMENTS

VAA

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CLIENT:

JAPS-OLSON COMPANY

Japs-Olson Company — Direct mail and commercial print

PROJECT:

PROPOSED EAST PARKING LOT ADDITION
JAPS-OLSON COMPANY
ST. LOUIS PARK, MN

NO	DATE	ISSUE/REVISION	BY
0	06/19/15	ISSUED FOR BID	MAP

CERTIFICATION:

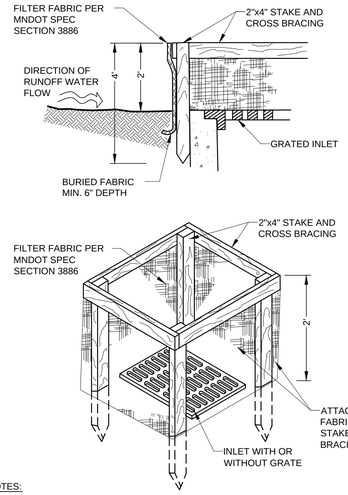
BID DOCUMENTS
NOT FOR CONSTRUCTION

DATE: 06/19/15
DRAWN: AJR
DESIGNED: ARL
CHECKED:
APPROVED:

DRAWING TITLE:

SITE, PAVING AND UTILITY PLAN

PROJECT NO: 140218
SCALE: AS NOTED
DRAWING NO: C300



GENERAL NOTES:

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

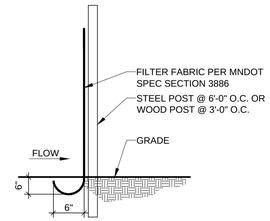
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

1. FINISHED SIZE SHALL EXTEND A MINIMUM OF 10" BEYOND THE PERIMETER OF INLET TO FACILITATE MAINTENANCE OR REMOVAL.

NOT TO SCALE

INLET PROTECTION

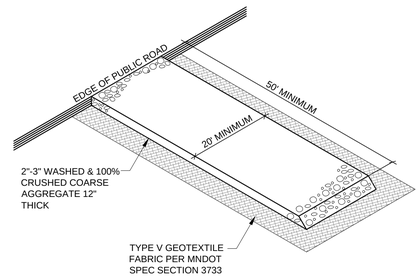
VAA PLATE NO. C-1013



NOT TO SCALE

SILT FENCE DETAIL

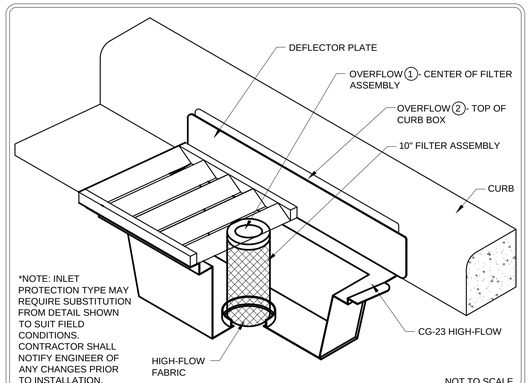
VAA PLATE NO. C-1002



NOT TO SCALE

ROCK CONSTRUCTION ENTRANCE

VAA PLATE NO. C-1005

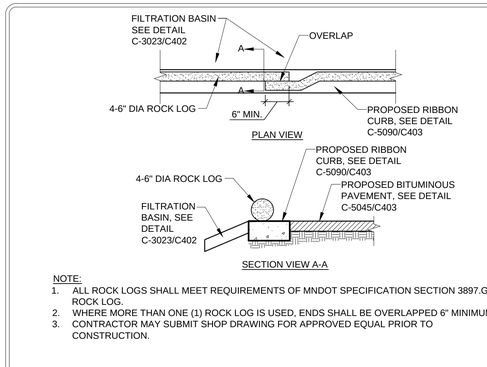


*NOTE: INLET PROTECTION TYPE MAY REQUIRE SUBSTITUTION FROM DETAIL SHOWN TO SUIT FIELD CONDITIONS. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CHANGES PRIOR TO INSTALLATION.

NOT TO SCALE

WIMCO OR APPROVED EQUAL SEDIMENT CONTROL AT CB/MH

VAA PLATE NO. C-1008

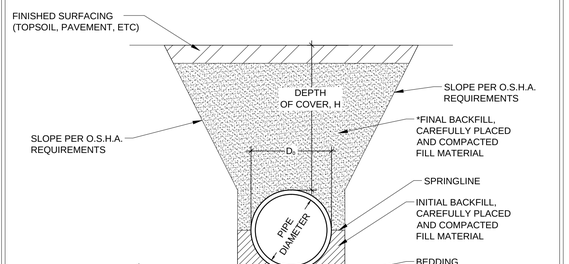


NOTE:
1. ALL ROCK LOGS SHALL MEET REQUIREMENTS OF MNDOT SPECIFICATION SECTION 3897.G ROCK LOG.
2. WHERE MORE THAN ONE (1) ROCK LOG IS USED, ENDS SHALL BE OVERLAPPED 6" MINIMUM
3. CONTRACTOR MAY SUBMIT SHOP DRAWING FOR APPROVED EQUAL PRIOR TO CONSTRUCTION.

NOT TO SCALE

ROCK LOG (PERIMETER PROTECTION)

VAA PLATE NO. C-1004

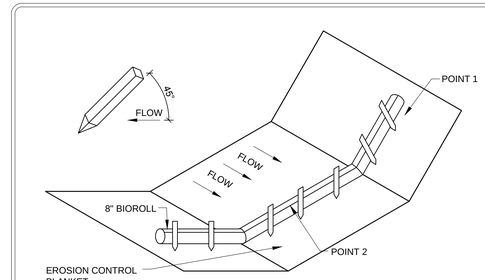


*NOTE: FINAL BACKFILL MAY BE SUITABLE ON-SITE MATERIALS. COORDINATE WITH GEOTECHNICAL ENGINEER ON SUITABILITY OF ON-SITE MATERIAL

NOT TO SCALE

RCP PIPE BEDDING - CATEGORY II SOILS

VAA PLATE NO. C-6200



NOTE:
1. POINT 1 MUST BE A MINIMUM OF 12" HIGHER THAN POINT 2 (TOP OF BIOROLL) TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS
2. STAKES SHALL BE INSTALLED PER DOT OR THE FOLLOWING AS A MINIMUM.
   A. 1/2" x 2" x 16" WOODEN STAKES
   B. STAKED @ 45° WITH TOP OF STAKE POINTING UP STREAM.
   C. MAX SPACING OF STAKES SHALL BE 1.0 FEET.

NOT TO SCALE

BIOROLL DITCH CHECK

VAA PLATE NO. C-1009

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CLIENT:

JAPS-OLSON COMPANY

Japs-Olson Company
Direct mail and commercial print

PROJECT:

PROPOSED EAST PARKING LOT ADDITION
JAPS-OLSON COMPANY
ST. LOUIS PARK, MN

NO	DATE	ISSUE/REVISION	BY
0	06/19/15	ISSUED FOR BID	MAP

CERTIFICATION:

BID DOCUMENTS
NOT FOR CONSTRUCTION

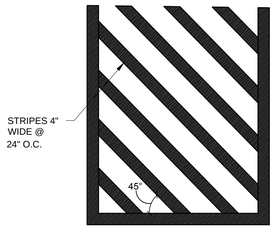
DATE:	DRAWN:	
06/19/15	AJR	
DESIGNED: ARL	CHECKED:	APPROVED:

DRAWING TITLE:

CIVIL DETAILS

PROJECT NO:	DRAWING NO:
140218	C400
SCALE: AS NOTED	

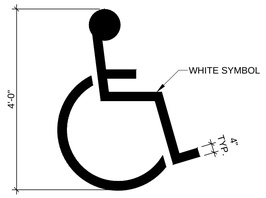
Date Plotted: Friday, June 19, 2015



NOT TO SCALE

VAA PLATE NO. C-5004

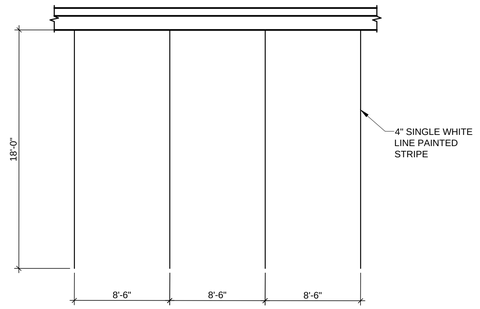
NO PARKING AREA



NOT TO SCALE

VAA PLATE NO. C-5005

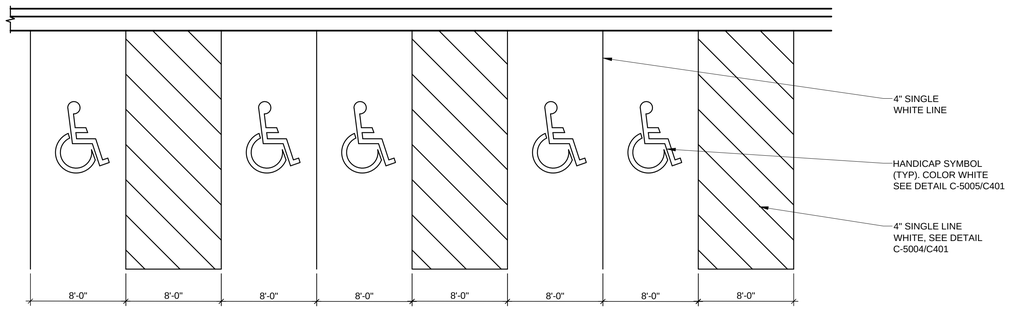
ACCESSIBLE PARKING SYMBOL



NOT TO SCALE

VAA PLATE NO. C-5085

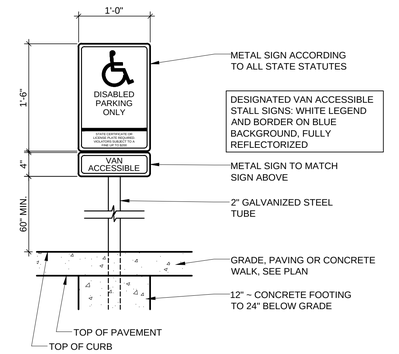
PAVEMENT MARKING DETAIL



NOT TO SCALE

VAA PLATE NO. C-5024

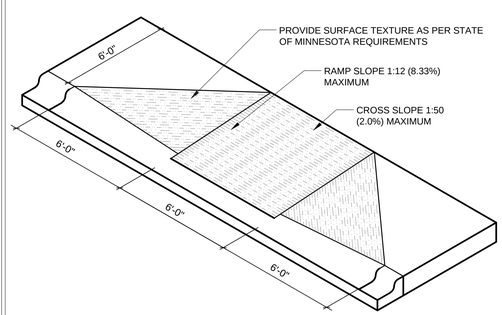
ACCESSIBLE PARKING STALL(S) DETAIL



NOT TO SCALE

VAA PLATE NO. C-5010

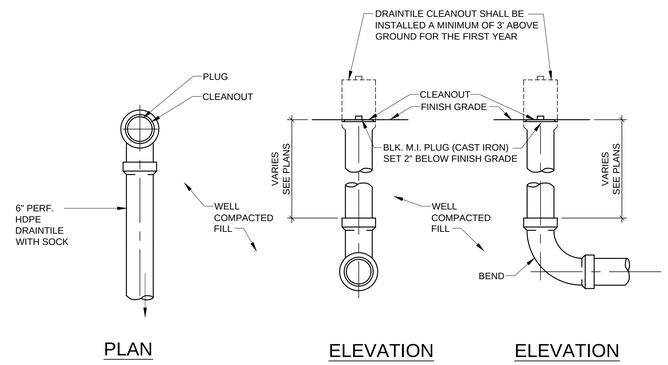
ACCESSIBLE PARKING SIGN DETAIL



NOT TO SCALE

VAA PLATE NO. C-5014

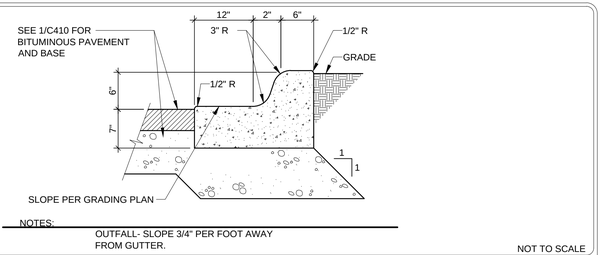
ADA RAMP DETAIL



NOT TO SCALE

VAA PLATE NO. C-3028

DRAINTILE CLEANOUT



NOT TO SCALE

VAA PLATE NO. C-5030

CONCRETE CURB & GUTTER (B612)

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CLIENT:

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PROJECT:

PROPOSED EAST PARKING LOT ADDITION
JAPS-OLSON COMPANY
ST. LOUIS PARK, MN

NO	DATE	ISSUE/REVISION	BY
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CERTIFICATION:

BID DOCUMENTS
NOT FOR CONSTRUCTION

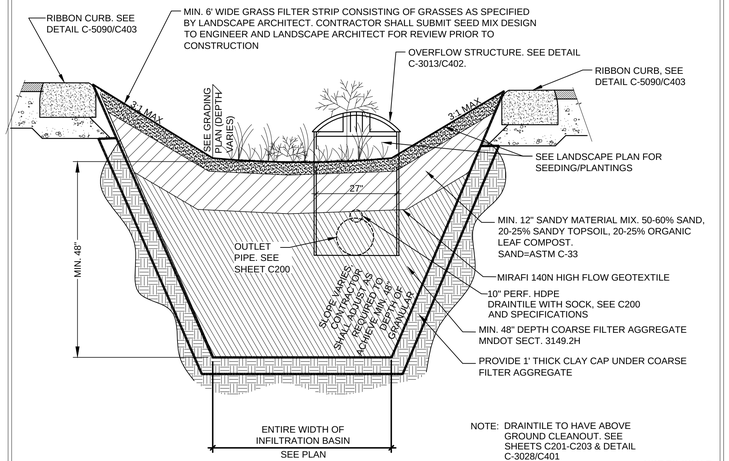
DATE: 06/19/15	DRAWN: AJR	
DESIGNED: ARL	CHECKED:	APPROVED:

DRAWING TITLE:

CIVIL DETAILS

PROJECT NO: 140218	DRAWING NO: C401
SCALE: AS NOTED	

Date Plotted: Friday, June 19, 2015



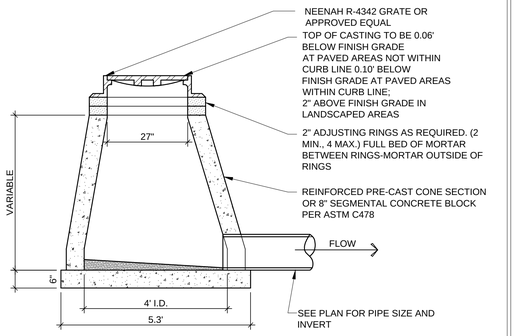
NOTE: DRAINTILE TO HAVE ABOVE GROUND CLEANOUT. SEE SHEETS C201-C203 & DETAIL C-3028/C401

NOT TO SCALE

VAA PLATE NO. C-3023

FILTRATION BASIN DETAIL

NOTE: FILTRATION BASINS SHALL BE PROTECTED FROM COMPACTION DURING CONSTRUCTION. PERIMETERS OF FILTRATION BASINS SHALL BE SURROUNDED BY ROCK LOGS AFTER MASS GRADING OPERATIONS TO AVOID SILTATION DURING CONSTRUCTION.



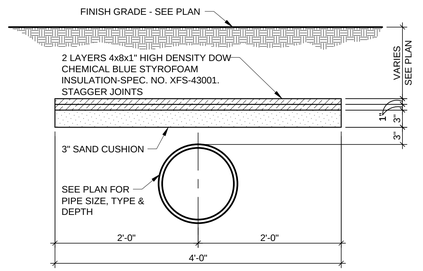
NOTE:

1. REINFORCING SHALL BE A MINIMUM OF A SINGLE LINE WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.

NOT TO SCALE

VAA PLATE NO. C-3013

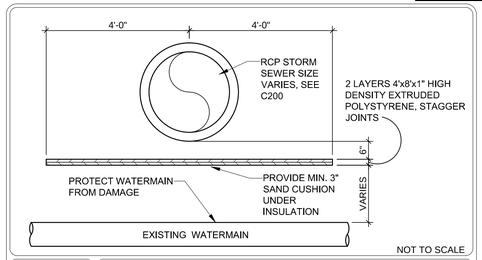
27" CATCH BASIN



NOT TO SCALE

VAA PLATE NO. C-4012

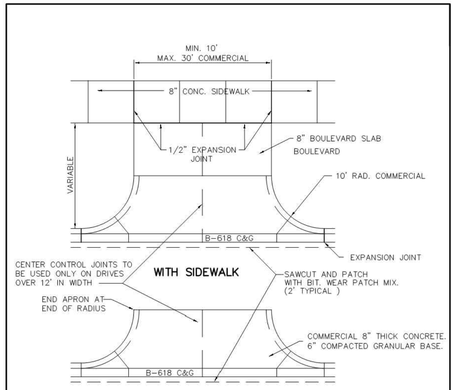
PIPE INSULATION AT STORM PIPE



NOT TO SCALE

VAA PLATE NO. C-4007

INSULATION AT WATERMAIN AND STORM SEWER



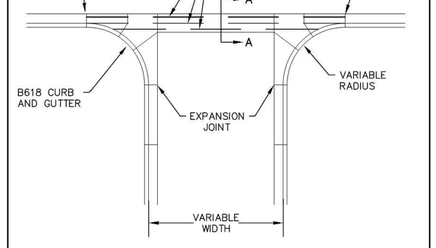
WITHOUT SIDEWALK

CONCRETE THICKNESS SCHEDULE		
DRIVEWAY	THICKNESS	AREAS
COMMERCIAL	8"	APRON,BLV. SLAB, SIDE-WALK.

NOTE:
CONCRETE CURB TO BE POURED INTEGRAL WITH APRON, MAX. 5% CROSS SLOPE

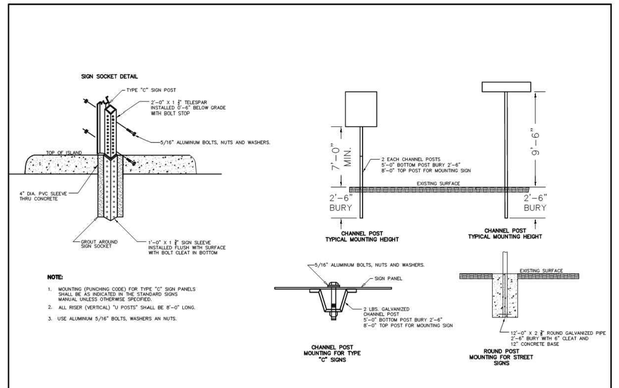
SPECIFICATION
CONCRETE TO BE MnDOT 3A32 MIX DESIGN WITH 6% ± 1% AIR CONTENT.

St. Louis Park MINNESOTA ENGINEERING	COMMERCIAL DRIVEWAY	PUBLISH DATE 1/23/2014	PLATE NO. ST-2



SECTION A-A

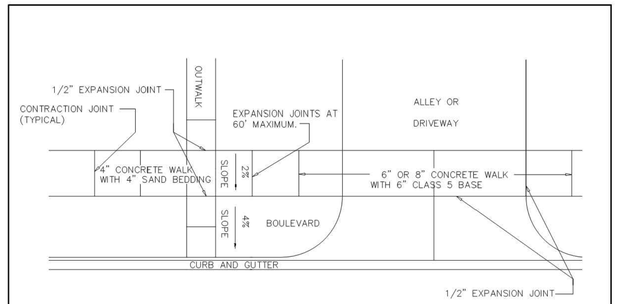
St. Louis Park MINNESOTA ENGINEERING	VALLEY GUTTER	PUBLISH DATE 1/23/2014	PLATE NO. ST-3



NOTE:
1. MOUNTING (PUNCHING CODE) FOR TYPE "C" SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
2. ALL RISER (VERTICAL) "U POSTS" SHALL BE 8'-0" LONG.
3. USE ALUMINUM 5/16" BOLTS, WASHERS AN NUTS.

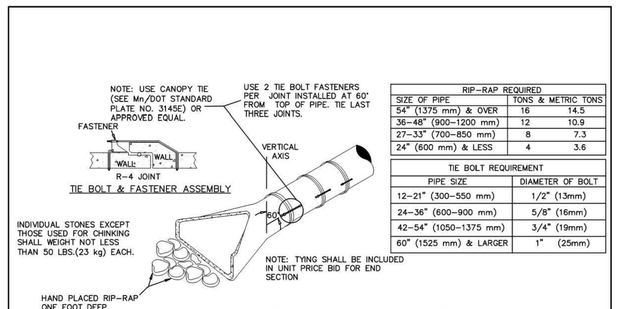
SIGN INSTALLATION DETAIL

St. Louis Park MINNESOTA ENGINEERING	SIGN INSTALLATION DETAIL	PUBLISH DATE 1/23/2014	PLATE NO. M-1



NOTES;
1. PRIVATE OUTWALK IN R-O-W MUST CONFORM TO MNDOT & ADA STANDARDS.
2. ALL SIDEWALK CROSSING DRIVEWAYS OR ALLEYS SHALL HAVE THE SAME THICKNESS AS THE APRON.
3. ONE PANEL ON EACH SIDE OF APRON CROSSING SHALL BE SAME THICKNESS AS THE APRON.
4. PED RAMP AREAS SHALL BE A MINIMUM OF 6" THICK.

St. Louis Park MINNESOTA ENGINEERING	SIDEWALK DETAIL	PUBLISH DATE 1/23/2014	PLATE NO. ST-9



RIP-RAP REQUIRED	
SIZE OF PIPE	TONS & METRIC TONS
54" (1375 mm) & OVER	16 14.5
36-48" (900-1200 mm)	12 10.9
27-33" (700-850 mm)	8 7.3
24" (600 mm) & LESS	4 3.6

TIE BOLT REQUIREMENT	
PIPE SIZE	DIAMETER OF BOLT
12-21" (300-550 mm)	1/2" (13mm)
24-36" (600-900 mm)	5/8" (16mm)
42-54" (1050-1375 mm)	3/4" (19mm)
60" (1525 mm) & LARGER	1" (25mm)

St. Louis Park MINNESOTA ENGINEERING	FLARED END SECTION	PUBLISH DATE 1/23/2014	PLATE NO. SS-4

VAA

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CLIENT:

JAPS-OLSON COMPANY

Japs-Olson Company
Direct mail and commercial print

PROJECT:

PROPOSED EAST PARKING LOT ADDITION
JAPS-OLSON COMPANY
ST. LOUIS PARK, MN

NO	DATE	ISSUE/REVISION	BY
0	06/19/15	ISSUED FOR BID	MAP

CERTIFICATION:

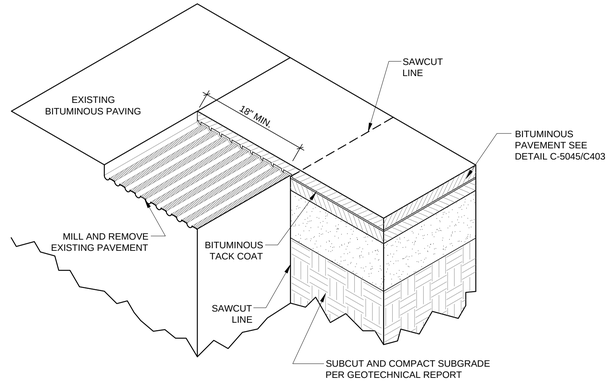
BID DOCUMENTS
NOT FOR CONSTRUCTION

DATE: 06/19/15	DRAWN: AJR	
DESIGNED: ARL	CHECKED:	APPROVED:

DRAWING TITLE:

CIVIL DETAILS

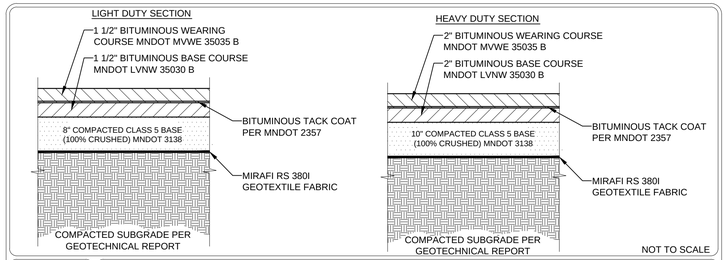
PROJECT NO: 140218	DRAWING NO: C402
SCALE: AS NOTED	



NOT TO SCALE

VAA PLATE NO. C-5022

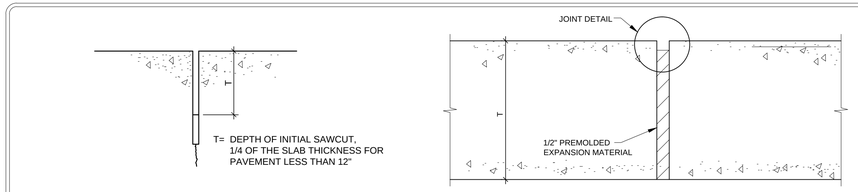
MILLED BITUMINOUS EDGE



NOT TO SCALE

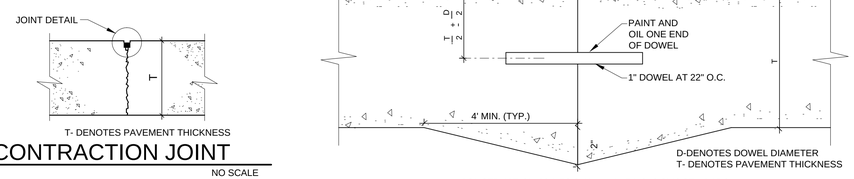
VAA PLATE NO. C-5045

BITUMINOUS PAVEMENT DETAIL



1 JOINT DETAILS — NO SCALE

3 EXPANSION JOINT — NO SCALE



2 CONTRACTION JOINT — NO SCALE

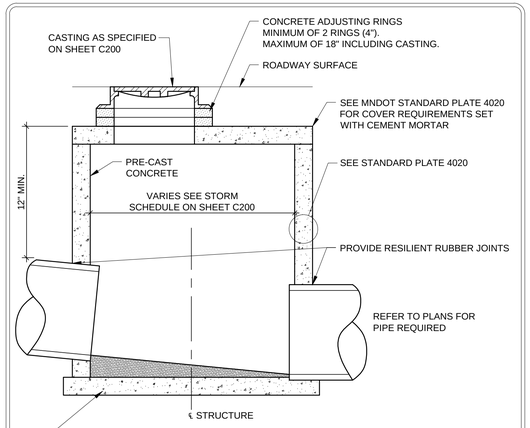
CONSTRUCTION JOINTS SHALL HAVE NO. 8 SMOOTH BARS 18" LONG AND SPACED 22" O.C.

3 DOWELED CONSTRUCTION JOINT — NO SCALE

NOT TO SCALE

VAA PLATE NO. C-5073

CONCRETE JOINT DETAILS



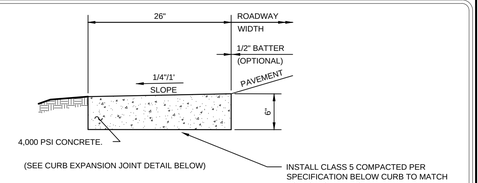
NOTE:

1. REFER TO STANDARD PLANS FOR HEIGHT AND DIAMETER REQUIRED.
2. MANHOLE STEPS SHALL BE POLYPROPYLENE PLASTIC REINFORCED WITH A NO. 2 DEFORMED STEEL ROD GRADE 60 AND SPACED 16" O.C.
3. REINFORCEMENT AS PER SPEC 3301, GRADE 60

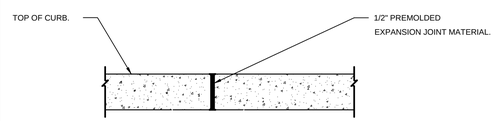
NOT TO SCALE

VAA PLATE NO. C-3011

STANDARD MANHOLE FOR STORM SEWER



RIBBON CURB



CURB EXPANSION JOINT DETAIL

NOTES:

1. ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, C309 AND D1752. BROOM FINISH EXPOSED SURFACE.
2. CONTROL JOINT SPACING SHALL NOT EXCEED 10'-0".
3. EXPANSION JOINTS AS PER STANDARD ASTM D-1752.
4. EXPANSION JOINT INTERVALS NOT TO EXCEED 60'-0" FOR ALL CURBS AND CONSTRUCTION METHODS.

NOT TO SCALE

VAA PLATE NO. C-5090

RIBBON CURB WITH EXPANSION JOINT DETAIL

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DESIGNED: ARL	CHECKED:	APPROVED:

DRAWING TITLE:

CIVIL DETAILS

PROJECT NO: 140218	DRAWING NO: C403
SCALE: AS NOTED	

Date Plotted: Friday, June 19, 2015

CONSTRUCTION ACTIVITY REQUIREMENTS

THE GENERAL STORM WATER NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT IS REQUIRED FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY. THE PERMITEE(S) AS INDICATED IN THE PERMIT, MUST IMPLEMENT THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AS DEMONSTRATED HEREIN AND WITHIN THE SWPPP NARRATIVE. THE BEST MANAGEMENT PRACTICES (BMP's) IDENTIFIED MUST BE INSTALLED IN AN APPROPRIATE AND FUNCTIONAL WAY TO PREVENT DIRT AND/OR DEBRIS FROM ENTERING THE STORM SEWER OR BEING TRANSPORTED OFF SITE IN AN UNCONTROLLED MANNER.

FOR REQUIREMENTS ASSOCIATED WITH FISH/WILDLIFE/RIVERS AND OTHER BODIES OF WATER, SEE MNDNR.

EROSION PREVENTION PRACTICES

1. ALL EXPOSED SOIL MUST BE STABILIZED AS SOON AS POSSIBLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE WHERE WORK HAS TEMPORARILY OR PERMANENTLY CEASED.

   THESE AREAS INCLUDE, BUT ARE NOT LIMITED TO, CONSTRUCTED STORM WATER MANAGEMENT POND, SIDE SLOPES, AND ANY EXPOSED SOIL AREAS WITH A POSITIVE SLOPE TO STORM WATER CONVEYANCE SYSTEM, SUCH AS A CURB AND GUTTER SYSTEM, STORM SEWER INLET, TEMPORARY OR PERMANENT DRAINAGE DITCH OR OTHER NATURAL OR MANMADE SYSTEMS THAT DISCHARGE TO A SURFACE WATER.

2. THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH THAT DRAINS WATER FROM A CONSTRUCTION SITE, OR DIVERTS WATER AROUND A SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE TO ANY SURFACE WATER. STABILIZATION MUST BE COMPLETED WITHIN 24 HOURS OF CONNECTING TO A SURFACE WATER.

3. PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER. CONTRACTOR TO PREVENT DIRT AND/OR DEBRIS FROM ENTERING STORM SEWER OR BEING TRANSPORTED OFF-SITE IN AN UNCONTROLLED MANNER. CONTRACTOR TO VERIFY AT PROJECT CLOSE-OUT THAT STORM SEWER SYSTEM IS CLEAR OF SEDIMENT AND/OR DEBRIS AND IS FULLY FUNCTIONAL. CONTRACTOR TO FOLLOW BEST MANAGEMENT PRACTICES (BMP'S).

4. ALL DISTURBED AREAS, EXCEPT ROADWAYS, BUILDING AREAS, PARKING AREAS, ISLANDS AND SIDEWALKS, SHALL BE RESTORED WITH MINIMUM 6 INCHES TOPSOIL, SEEDED AND MULCHED AS SOON AS POSSIBLE AND NO LATER THAN 14 DAYS OF COMPLETION OF SITE GRADING.

5. IN ORDER TO MAINTAIN SHEET FLOW AND MINIMIZE HILLS AND/OR GULLIES, THERE SHALL BE NO UNBROKEN SLOPE LENGTH OF GREATER THAN 75 FEET FOR SLOPES WITH A GRADE OF 3:1 OR STEEPER.

6. EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL 3:1 SLOPES AND STEEPER, DITCH BOTTOMS AND OTHER "HARD TO HOLD" AREAS AS SHOWN.

SEDIMENT CONTROL PRACTICES

1. CONTRACTOR TO INSTALL SEDIMENT CONTROL ELEMENTS PRIOR TO START OF LAND DISTURBING ACTIVITIES, MAINTAIN IN GOOD CONDITION DURING CONSTRUCTION AND REMOVE FROM THE SITE UPON COMPLETION OF FINAL PAVING AND TURF ESTABLISHMENT. REMOVE FROM SITE UPON COMPLETION OF FINAL STABILIZATION. ALL SEDIMENT CONTROL ELEMENTS ARE TEMPORARY.

2. TEMPORARY ROCK CONSTRUCTION ENTRANCE SHALL BE LOCATED AT ALL CONSTRUCTION ACCESS LOCATIONS. SEE DETAIL C-1005/C400.

3. REMOVE ALL SOILS AND SEDIMENTS TRACKED OR OTHERWISE DEPOSITED ONTO PUBLIC AND PRIVATE PAVEMENT AREAS. REMOVAL SHALL BE ON A DAILY BASIS THROUGHOUT THE DURATION OF THE CONSTRUCTION. CLEAN PAVED ROADWAYS BY SHOVELING OR SWEEPING. STREET WASHING IS ALLOWED ONLY AFTER SHOVELING OR SWEEPING HAS REMOVED SEDIMENT.

4. SEDIMENT CONTROL PRACTICES MUST DETER SEDIMENT FROM ENTERING SURFACE WATERS, INCLUDING CURB AND GUTTER SYSTEMS, STORM SEWER INLETS, AND FLARED END SECTIONS (SEE DETAILS C-1003/C400 AND C-1013/C400).

5. TEMPORARY OR PERMANENT DRAINAGE DITCHES AND SEDIMENT BASINS THAT ARE DESIGNED AS PART OF A TREATMENT SYSTEM (E.G., DITCHES WITH ROCK CHECK DAMS) REQUIRE SEDIMENT CONTROL PRACTICES ONLY AS APPROPRIATE FOR SITE CONDITIONS.

6. SEDIMENT CONTROL PRACTICES MUST BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS BEFORE ANY UPGRADIENT LAND DISTURBING ACTIVITIES BEGIN. THESE PRACTICES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS BEEN ESTABLISHED.

SEDIMENT CONTROL PRACTICES CONTINUED

7. IF THE DOWN GRADIENT TREATMENT SYSTEM IS OVERLOADED, ADDITIONAL UPGRADIENT SEDIMENT CONTROL PRACTICES MUST BE INSTALLED TO ELIMINATE THE OVERLOADING, AND THE SWPPP MUST BE AMENDED TO IDENTIFY THESE ADDITIONAL PRACTICES.

8. THE TIMING OF THE INSTALLATION OF SEDIMENT CONTROL PRACTICES MAY BE ADJUSTED TO ACCOMMODATE SHORT-TERM ACTIVITIES SUCH AS CLEARING OR GRUBBING, OR PASSAGE OF VEHICLES. ANY SHORT-TERM ACTIVITY MUST BE COMPLETED AS QUICKLY AS POSSIBLE AND THE SEDIMENT CONTROL PRACTICES MUST BE INSTALLED IMMEDIATELY AFTER THE ACTIVITY IS COMPLETED. HOWEVER, SEDIMENT CONTROL PRACTICES MUST BE INSTALLED BEFORE THE NEXT PRECIPITATION EVENT EVEN IF THE ACTIVITY IS NOT COMPLETE.

9. CONTRACTOR TO INSTALL AND MAINTAIN INLET PROTECTION AROUND ALL EXISTING CATCHBASINS, CATCHBASIN MANHOLES, AND FLARED END SECTIONS PRIOR TO THE START OF LAND DISTURBING ACTIVITIES AND AROUND ALL NEW CATCHBASINS, CATCHBASIN MANHOLES, AND FLARED END SECTIONS AFTER THEY ARE INSTALLED, UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED. SEE DETAILS C-1003/C400 AND C-1013/C400 .

10. TEMPORARY SOIL STOCKPILES MUST HAVE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS, AND CANNOT BE PLACED IN SURFACE WATERS, INCLUDING STORM WATER CONVEYANCES SUCH AS CURB AND GUTTER SYSTEMS, OR CONDUITS AND DITCHES.

11. STOCKPILE AREAS WHICH REMAIN INACTIVE FOR MORE THAN 14 DAYS SHALL BE SEEDED, MULCHED, AND SURROUNDED BY SILT FENCE.

12. THE PERMITEE(S) MUST INSTALL TEMPORARY SEDIMENTATION BASINS AS REQUIRED PER THE AUTHORITY HAVING JURISDICTION. IT IS RECOMMENDED THAT THE TEMPORARY BASIN BE INSTALLED IN THE LOCATION OF THE PERMANENT BASIN. CONTRACTOR TO CLEAN OUT ALL SEDIMENT AND RETURN BASIN TO DESIGN CAPACITY PRIOR TO FINAL STABILIZATION.

DEWATERING AND BASIN DRAINING

1. DEWATERING OR BASIN DRAINING (E.G. PUMPED DISCHARGES, TRENCH/DITCH CUTS FOR DRAINAGE) RELATED TO THE CONSTRUCTION ACTIVITY THAT MAY HAVE TURBID OR SEDIMENT LADEN DISCHARGE WATER MUST BE DISCHARGED TO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN ON THE PROJECT SITE WHENEVER POSSIBLE. IF THE WATER CANNOT BE DISCHARGED TO A SEDIMENTATION BASIN PRIOR TO ENTERING THE SURFACE WATER, IT MUST BE TREATED WITH THE APPROPRIATE BMP's, SUCH THAT THE DISCHARGE DOES NOT ADVERSELY AFFECT THE RECEIVING WATER OR DOWNSTREAM LANDOWNERS. THE PERMITEE(S) MUST ENSURE THAT DISCHARGE POINTS ARE ADEQUATELY PROTECTED FROM EROSION AND SCOUR. THE DISCHARGE MUST BE DISPERSED OVER NATURAL ROCK RIPRAP, SAND BAGS, PLASTIC SHEETING OR OTHER ACCEPTED ENERGY DISSIPATION MEASURES. ADEQUATE SEDIMENTATION CONTROL MEASURES ARE REQUIRED FOR DISCHARGE WATER THAT CONTAINS SUSPENDED SOLIDS.

2. ALL WATER FROM DEWATERING OR BASIN DRAINING ACTIVITIES MUST BE DISCHARGED IN A MANNER THAT DOES NOT CAUSE NUISANCE CONDITIONS, EROSION IN RECEIVING CHANNELS OR ON DOWNSLOPE PROPERTIES, OR INUNDATION IN WETLANDS CAUSING SIGNIFICANT ADVERSE IMPACT TO THE WETLAND.

3. ANY DEWATERING ACTIVITY SHALL BE APPROVED BY THE ENGINEER AND THE APPROPRIATE GOVERNING AGENCIES PRIOR TO CONSTRUCTION.

INSPECTIONS AND MAINTENANCE

INSPECTIONS AND MAINTENANCE ARE CONDUCTED BY THE SUPERVISOR/CONTRACTOR AND MUST CONFORM TO THE SWPPP NARRATIVE.

IMPLEMENTATION SCHEDULE

THE IMPLEMENTATION SCHEDULE MUST CONFORM TO THE SWPPP NARRATIVE.

TEMPORARY EROSION CONTROL PLAN

INSTALL SEDIMENT PONDS AT RATE OF 1800 CF OF DEAD STORAGE PER ACRE OF DISTURBED LAND. TEMPORARY SEDIMENT BASINS SHALL BE OPERATIONAL UNTIL PERMANENT COVER IS ESTABLISHED FOR THE ENTIRE DRAINAGE AREA OF THE TEMPORARY BASIN. TEMPORARY SEDIMENT BASINS MUST BE CONSTRUCTED AND MADE OPERATIONAL CONCURRENTLY WITH THE START OF SOIL DISTURBANCE THAT IS UPGRADIENT OF THE AREA AND CONTRIBUTES RUNOFF TO THE POND.

	BEFORE CONSTRUCTION	AFTER CONSTRUCTION
TOTAL PROJECT AREA	**9.32 AC**	**9.32 AC**
DISTURBED AREA	**0 AC**	**9.32 AC**
TOTAL ESTIMATED IMPERVIOUS	**8.06 AC**	**5.32 AC**
TOTAL ESTIMATED PERVIOUS	**1.26 AC**	**4.00 AC**

BMP	ESTIMATED QUANTITIES OF BMP'S	UNITS
SILT FENCE	**1,580**	LF
OUTLET PROTECTION WITH RIP RAP	**14.8**	CY
INLET PROTECTION AT CATCH BASIN	**10**	EA
BIO-ROLLS	**2**	EA
SEED	**4.76**	ACRES
FERTILIZER	**4.76**	ACRES
MULCH	**4.13**	ACRES
CONSTRUCTION ENTRANCE	**2**	EA
EROSION CONTROL BLANKET	**3,050**	SY

SWPPP CONTACT INFORMATION:

OWNER:
JAPS-OLSON COMPANY
7500 EXCELSIOR BLVD.
ST. LOUIS PARK, MN 55426

PROJECT SITE MANAGER:
T.B.D.

CONTRACTOR:
D.J. KRANZ COMPANY, INC.
BRUCE QUAM, PRESIDENT
725 HIGHWAY 169 NORTH
PLYMOUTH, MN 55441

THE SITE CONTRACTOR IS THE PARTY RESPONSIBLE TO OVERSEE THE IMPLEMENTATION OF THE SWPPP AND INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMP's BEFORE, DURING, AND AFTER CONSTRUCTION UNTIL FINAL STABILIZATION HAS BEEN ESTABLISHED AND THE "NOTICE OF TERMINATION" IS SUBMITTED. SEE THE GENERAL STORMWATER PERMIT FROM THE AUTHORITY HAVING JURISDICTION FOR REGULATIONS.

ALL INFORMATION WITHIN THE PLAN SET AND SPECIFICATIONS IS TO BE USED IN ACCORDANCE WITH THE SWPPP NARRATIVE AND THE LATEST CONSTRUCTION DOCUMENTS.

VAA
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PROPOSED EAST PARKING LOT ADDITION
JAPS-OLSON COMPANY
ST. LOUIS PARK, MN

NO	DATE	ISSUE/REVISION	BY
0	06/19/15	ISSUED FOR BID	MAP

CERTIFICATION:

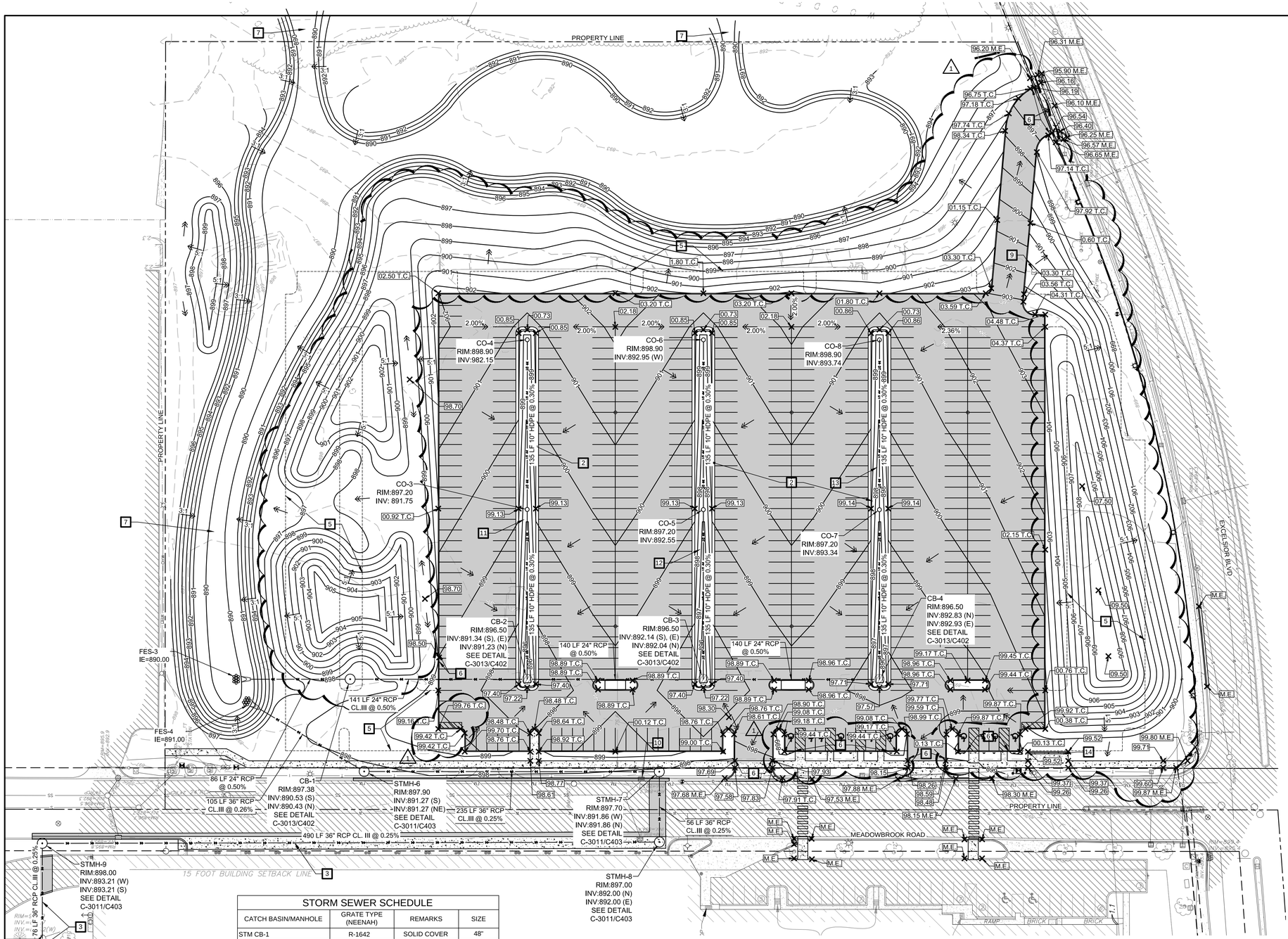
BID DOCUMENTS
NOT FOR CONSTRUCTION

DATE:	DRAWN:	
06/19/15	AJR	
DESIGNED: ARL	CHECKED:	APPROVED:

DRAWING TITLE:
STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

PROJECT NO:	DRAWING NO:
140218	C500
SCALE: AS NOTED	

Date Plotted: Friday, June 19, 2015



STORM SEWER SCHEDULE

CATCH BASIN/MANHOLE	GRATE TYPE (NEENAH)	REMARKS	SIZE
STM CB-1	R-1642	SOLID COVER	48"
STM CB-2	R-4342	INLET	48"
STM CB-3	R-4342	INLET	48"
STM CB-4	R-4342	INLET	48"
STM MH-6	R-1642	SOLID COVER	60"
STM MH-7	R-1642	SOLID COVER	84"
STM MH-8	R-1642	SOLID COVER	84"
STM MH-9	R-1642	SOLID COVER	84"

FOR FURTHER INFORMATION ON LANDSCAPING AND LIGHTING DESIGN, SEE PLANS PREPARED BY OTHERS

SEE DETAIL C-3028/C401 FOR FURTHER DETAIL ON DRAINTILE CLEANOUTS

CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLAN TO OWNER AND ENGINEER FOR REVIEW PRIOR TO MOBILIZATION. SEE SPECIFICATIONS FOR FURTHER DETAIL

NORTH

1 C200 GRADING AND DRAINAGE PLAN

0 40' 80' 120'

1"= 40'

KEYNOTES

1	NOT USED
2	PROPOSED STORMWATER FILTRATION AREA, SEE DETAIL C-3023/C402
3	INSULATE PIPE PER DETAIL C-4012/C402 (ENTIRE 36" PIPE)
4	CONNECT TO EXISTING STORM STRUCTURE INV ELEV: 893.40. PATCH EXISTING MANHOLE AS REQUIRED. PROVIDE WATERTIGHT CONNECTION. ENSURE POSITIVE DRAINAGE TO THIS INVERT FROM ALL EXISTING PIPE CONNECTIONS
5	FUTURE SITE IMPROVEMENTS
6	BEAVERTAIL CURB
7	STORMWATER AREA NORTH AND EAST OF PARKING LOT INTERIM DESIGN BY MCWD IS SHOWN AND SUBJECT TO CHANGE

KEYNOTES

8	NOT USED
9	EXISTING ELECTRICAL BOX TO BE RELOCATED/MODIFIED TO ACCOMMODATE PROPOSED GRADING IMPROVEMENTS. COORDINATE WITH OWNER AND UTILITY. NOTIFY ENGINEER IMMEDIATELY WITH ANY DISCREPANCIES
10	MODIFY EXISTING CATCH BASIN TO ACCOMMODATE NEENAH R-3067L CASTING OR APPROVED EQUAL AND MATCH GRADE. CONTRACTOR TO VERIFY SIZE PRIOR TO CONSTRUCTION
11	PROPOSED STORMWATER FILTRATION BOTTOM ELEV=895.50
12	PROPOSED STORMWATER FILTRATION BOTTOM ELEV=895.50
13	PROPOSED STORMWATER FILTRATION BOTTOM ELEV=895.50
14	PROPOSED BIKE RACK

GENERAL NOTES

1. ALL EXISTING INFORMATION TAKEN FROM SURVEY BY EFN EGAN, FIELD & NOWAK, INC., PROJECT NUMBER 35886, DATED JUNE 3, 2014.
2. SITE PLAN INFORMATION TAKEN FROM DRAWING PROVIDED BY STEVE FICHTEL ARCHITECTS, PROJECT 7400-PKG-5-5-2015 EM.DWG, DATED MAY 5, 2015.
3. SUBSURFACE GEOTECHNICAL INVESTIGATION BY BRAUN INTERTEC CORPORATION, PROJECT NUMBER B1500402.00, DATED FEBRUARY 27, 2015.
4. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS INCLUDING LOCATIONS OF EXISTING PUBLIC AND PRIVATE UTILITIES, AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING CONSTRUCTION.
5. ALL EXISTING UTILITIES AND OTHER IMPROVEMENTS ARE TO REMAIN UNLESS NOTED OTHERWISE.
6. CONTRACTOR TO PROTECT FROM DAMAGE ALL EXISTING IMPROVEMENTS, LANDSCAPING, STRUCTURES AND UTILITIES THAT ARE TO REMAIN. CONTRACTOR TO REPAIR ANY DAMAGE AT OWN EXPENSE.
7. ALL WORK TO CONFORM WITH CITY OF ST. LOUIS PARK AND STATE OF MINNESOTA STANDARDS AND REGULATIONS.
8. ALL EXCAVATIONS MUST COMPLY WITH THE REQUIREMENTS OF OSHA 29 CFR, PART 1926, SUBPART P "EXCAVATIONS AND TRENCHES". THIS DOCUMENT STATES THAT EXCAVATION SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. CATCHBASINS AND MANHOLES ARE SHOWN ON PLAN LARGER THAN ACTUAL SIZE. COORDINATE LOCATION OF MANHOLE COVER AND CASTING SO THAT IT IS PROPERLY LOCATED AT THE BACK OF CURBLINE FOR THE CURB INLETS OR CENTERED IN THE AREA AS SHOWN ON THE PLAN FOR THE AREA DRAINS AND MANHOLE COVERS.
10. FLARED END SECTIONS (FES) ARE SHOWN ON PLAN LARGER THAN ACTUAL SIZE. ALL PIPE LENGTHS INCLUDE FES. CONTRACTOR/SURVEYOR TO STAKE THE END OF FES FOR LOCATION.
11. PROVIDE TRAFFIC CONTROL AT STREETS AND SIDEWALKS PER CITY OF ST. LOUIS PARK AND MMUTCD REQUIREMENTS.
12. ANY WORK PERFORMED OUTSIDE THE PROPERTY BOUNDARIES MUST BE APPROVED BY OWNER AND ALL REGULATING GOVERNMENT AGENCIES AND APPROPRIATE PERMITS MUST BE OBTAINED.

GRADING NOTES

1. PROPOSED SPOT ELEVATIONS AND CONTOURS ARE TO TOP OF GRADE, PAVEMENT OR GUTTER LINE, UNLESS OTHERWISE SPECIFIED.
2. SEE SWPPP SHEET C500 FOR EROSION PREVENTION AND SEDIMENT CONTROL NOTES.
3. SEE SHEET C250 FOR LOCATIONS OF EROSION AND SEDIMENT CONTROL ITEMS. INSTALL PERIMETER EROSION AND SEDIMENT CONTROL ITEMS PRIOR TO CONSTRUCTION.

LEGEND

- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- PROPOSED MATCH EXISTING SPOT ELEVATION
- PROPOSED TOP OF CURB SPOT ELEVATION
- PROPOSED BOTTOM OF CURB SPOT ELEVATION
- DENOTES SURFACE DRAINAGE
- PROPOSED FES
- PROPOSED CATCH BASIN
- PROPOSED CLEANOUT
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED CURB AND GUTTER
- FUTURE SITE IMPROVEMENTS
- MAJOR CONTOUR
- MINOR CONTOUR
- PROPERTY LINE
- RIGHT OF WAY LINE
- SECTION LINE
- ADJACENT PROPERTY LINE
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER (FORCEMAIN)
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD ELECTRIC
- EXISTING FIBER OPTIC
- EXISTING TREE LINE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING HANDHOLE
- EXISTING UTILITY VAULT
- EXISTING METAL COVER
- EXISTING ELECTRIC BOX
- EXISTING CATCH BASIN
- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING COMMUNICATION BOX
- EXISTING WATER MANHOLE
- EXISTING TREE
- EXISTING LIGHT POLE
- EXISTING BOLLARD
- EXISTING PIPE
- EXISTING BITUMINOUS PAVEMENT
- EXISTING CONCRETE PAVEMENT

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ST. LOUIS PARK, MN

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0	06/19/15	ISSUED FOR BID	MAP
1	06/26/15	ADDENDUM #1	MAP

CERTIFICATION:

BID DOCUMENTS
NOT FOR CONSTRUCTION

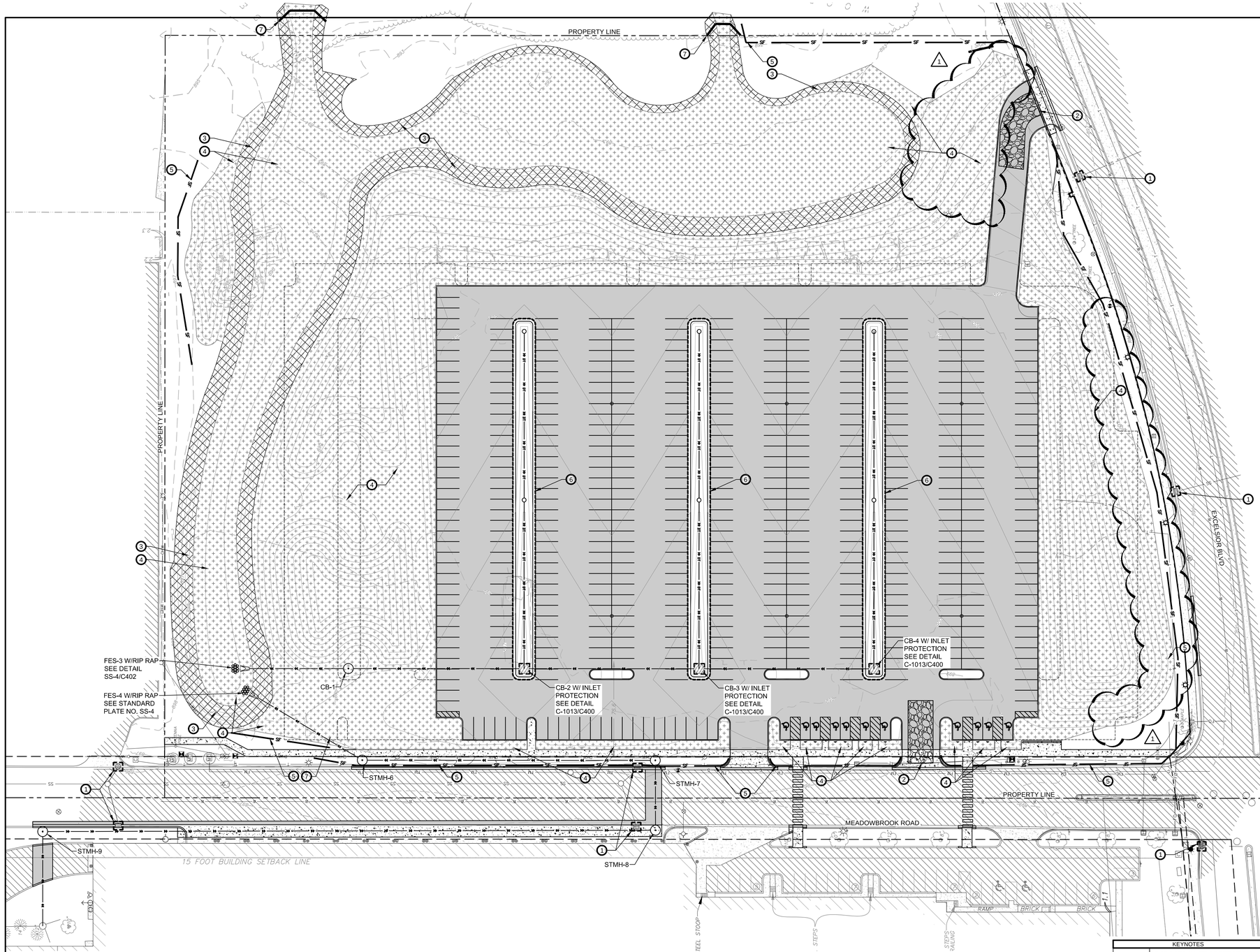
DATE:	DRAWN:	
06/19/15	AJR	
DESIGNED:	CHECKED:	APPROVED:
ARL		

DRAWING TITLE:

GRADING AND DRAINAGE PLAN

PROJECT NO:	DRAWING NO:
140218	C200
SCALE: AS NOTED	

Date Plotted: Friday, June 26, 2015



NORTH

1 C250 EROSION CONTROL PLAN

0 40' 80' 120'

1"= 40'

FOR FURTHER INFORMATION ON LANDSCAPING AND LIGHTING DESIGN, SEE PLANS PREPARED BY OTHERS

KEYNOTES	
1	PROPOSED INLET PROTECTION AT EXISTING CATCHBASIN, SEE DETAIL C-1008/C400
2	ROCK CONSTRUCTION ENTRANCE SEE DETAIL C-1005/C400
3	EROSION CONTROL BLANKET AND SEEDING, SEE DETAIL C-1000/C400 AND EROSION CONTROL NOTE #1
4	SEEDING, SEE EROSION CONTROL NOTE #1
5	SILT FENCE, SEE DETAIL C-1002/C400
6	606 LF ROCK LOG PERIMETER CONTROL, SEE DETAIL C-1004/C400
7	BIOROLL, SEE DETAIL C1009/C400

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5. ALL EXISTING UTILITIES AND OTHER IMPROVEMENTS ARE TO REMAIN UNLESS NOTED OTHERWISE.
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7. ALL WORK TO CONFORM WITH CITY OF ST. LOUIS PARK AND STATE OF MINNESOTA STANDARDS AND REGULATIONS.
8. ALL EXCAVATIONS MUST COMPLY WITH THE REQUIREMENTS OF OSHA 29 CFR, PART 1926, SUBPART P "EXCAVATIONS AND TRENCHES". THIS DOCUMENT STATES THAT EXCAVATION SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. CATCHBASINS AND MANHOLES ARE SHOWN ON PLAN LARGER THAN ACTUAL SIZE. COORDINATE LOCATION OF MANHOLE COVER AND CASTING SO THAT IT IS PROPERLY LOCATED AT THE BACK OF CURBLINE FOR THE CURB INLETS OR CENTERED IN THE AREA AS SHOWN ON THE PLAN FOR THE AREA DRAINS AND MANHOLE COVERS.
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11. PROVIDE TRAFFIC CONTROL AT STREETS AND SIDEWALKS PER CITY OF ST. LOUIS PARK AND MMUTCD REQUIREMENTS.
12. ANY WORK PERFORMED OUTSIDE THE PROPERTY BOUNDARIES MUST BE APPROVED BY OWNER AND ALL REGULATING GOVERNMENT AGENCIES AND APPROPRIATE PERMITS MUST BE OBTAINED.

EROSION CONTROL

1. CONTRACTOR TO RESTORE ALL AREAS OUTSIDE OF PAVING. SEEDING AND FERTILIZER PER SECTIONS 3876 AND 3881 IN MNDOT SPECIFICATIONS, MULCH PER SECTION 3882 IN MNDOT SPECIFICATIONS, UNLESS INDICATED OTHERWISE ON LANDSCAPE PLAN.
2. SEE SWPPP C500 FOR EROSION PREVENTION AND SEDIMENT CONTROL NOTES.

LEGEND

- PROPOSED CONTOUR
- PROPOSED FES W/ RIP RAP
- PROPOSED FES W/ INLET PROTECTION
- PROPOSED CATCH BASIN INLET PROTECTION
- PROPOSED CLEANOUT
- PROPOSED BIOROLL
- PROPOSED ROCK LOG
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED SILT FENCE
- LIMITS OF DISTURBANCE
- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED SEEDING AND MULCH
- PROPOSED CURB AND GUTTER
- FUTURE SITE IMPROVEMENTS
- MAJOR CONTOUR
- MINOR CONTOUR
- PROPERTY LINE
- RIGHT OF WAY LINE
- SECTION LINE
- ADJACENT PROPERTY LINE
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER (FORCEMAIN)
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD ELECTRIC
- EXISTING FIBER OPTIC
- EXISTING TREE LINE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING HANDHOLE
- EXISTING UTILITY VAULT
- EXISTING METAL COVER
- EXISTING ELECTRIC BOX
- EXISTING CATCH BASIN
- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING COMMUNICATION BOX
- EXISTING WATER MANHOLE
- EXISTING TREE
- EXISTING LIGHT POLE
- EXISTING BOLLARD
- EXISTING PIPE
- EXISTING BITUMINOUS PAVEMENT
- EXISTING CONCRETE PAVEMENT

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CLIENT:

JAPS-OLSON COMPANY

Japs-Olson Company
Direct mail and commercial print

PROJECT:

PROPOSED EAST PARKING LOT ADDITION
JAPS-OLSON COMPANY
ST. LOUIS PARK, MN

NO	DATE	ISSUE/REVISION	BY
0	06/19/15	ISSUED FOR BID	MAP
1	06/26/15	ADDENDUM #1	MAP

CERTIFICATION:

BID DOCUMENTS
NOT FOR CONSTRUCTION

DATE:	DRAWN:	
06/19/15	AJR	
DESIGNED:	CHECKED:	APPROVED:
ARL		

DRAWING TITLE:

EROSION CONTROL PLAN

PROJECT NO:	DRAWING NO:
140218	C250
SCALE: AS NOTED	

Date Plotted: Friday, June 26, 2015

LEGEND

- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED FES
- PROPOSED CATCH BASIN
- PROPOSED CLEANOUT
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED CURB AND GUTTER
- PROPOSED STALL COUNT
- FUTURE SITE IMPROVEMENTS
- PROPERTY LINE
- RIGHT OF WAY LINE
- SECTION LINE
- ADJACENT PROPERTY LINE
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER (FORCEMAIN)
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD ELECTRIC
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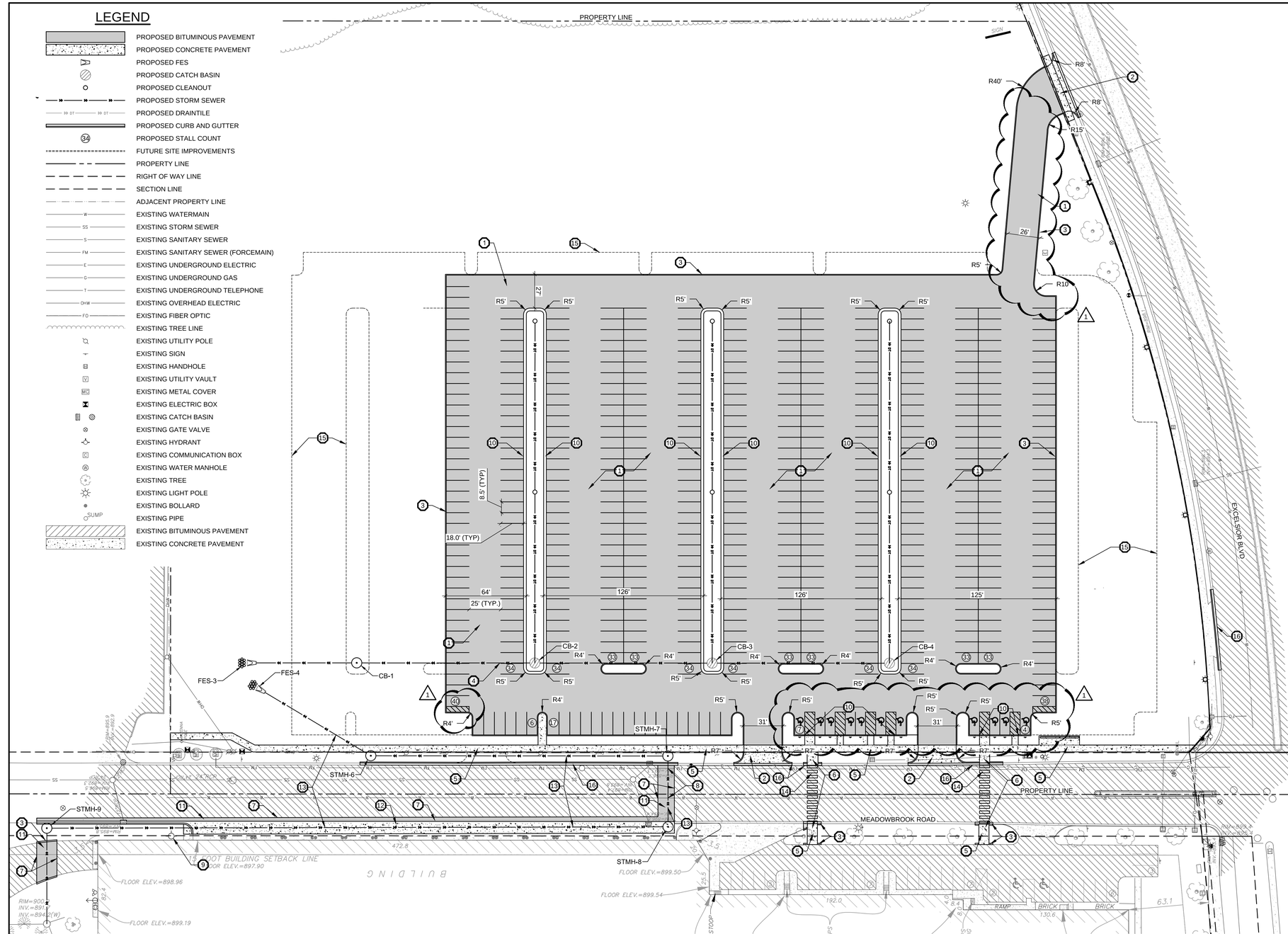
- EXISTING TREE
- EXISTING LIGHT POLE
- EXISTING BOLLARD
- EXISTING PIPE
- EXISTING BITUMINOUS PAVEMENT
- EXISTING CONCRETE PAVEMENT



FOR FURTHER INFORMATION ON LANDSCAPING AND LIGHTING DESIGN, SEE PLANS PREPARED BY OTHERS

CONTRACTOR SHALL SUBMIT CONCRETE JOINTING PLAN TO ENGINEER PRIOR TO CONSTRUCTION

CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLAN TO OWNER AND ENGINEER FOR REVIEW PRIOR TO MOBILIZATION. SEE SPECIFICATIONS FOR FURTHER DETAIL

ALL EXISTING CURB REMOVALS ON MEADOWBROOK ROAD AND EXCELSIOR BLVD. SHALL BE REMOVED TO THE NEAREST JOINT. SEE C100 FOR FURTHER INFORMATION

THE LOCATIONS OF THE EXISTING WATER AND SEWER SERVICES TO EXISTING BUILDING TO BE DEMOLISHED ARE CURRENTLY UNKNOWN . A PRIVATE LOCATE SHALL BE PROVIDED PRIOR TO CONSTRUCTION TO DOCUMENT THE LOCATIONS OF THESE LINES. THESE SERVICES SHALL BE DISCONNECTED AT THE MAIN WHEN THEY ARE REMOVED

ALL CURB RELATED DIMENSIONS SHOWN ARE TO BACK OF CURB

NORTH

1 C300 SITE, PAVING AND UTILITY PLAN

1"= 40'

0 40' 80' 120'

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UTILITY NOTES

1. ALL UTILITY DEMOLITION AND/OR ABANDONMENT TO BE PERFORMED IN ACCORDANCE WITH CITY OF ST. LOUIS PARK AND STATE OF MINNESOTA REGULATIONS AND STANDARDS.
2. EXISTING UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY THE LOCATION OF ALL EXISTING PUBLIC AND PRIVATE UTILITIES WHICH MAY INCLUDE BUT IS NOT LIMITED TO: ELECTRIC, TELEPHONE, GAS, CABLE TV, COMPUTER CABLE, FIBER OPTIC CABLE, SANITARY SEWER, STORM SEWER AND WATERMAIN. CONTRACTOR TO CONTACT MINNESOTA GOPHER STATE ONE CALL BEFORE EXCAVATING.
3. ALL ELECTRICAL POLE AND LIGHT REMOVAL SHALL BE COORDINATED WITH THE OWNER AND AUTHORITY HAVING JURISDICTION PRIOR TO DEMOLITION.
4. ALL PIPE LENGTHS INCLUDE LENGTHS OF FLARED ENDS
5. REMOVE ALL SOILS AND SEDIMENTS TRACKED OR OTHERWISE DEPOSITED ONTO PUBLIC AND PRIVATE PAVEMENT AREAS. REMOVAL SHALL BE ON A DAILY BASIS THROUGHOUT THE DURATION OF THE CONSTRUCTION. CLEAN PAVED ROADWAYS BY SHOVELING OR SWEEPING. STREET WASHING IS ALLOWED ONLY AFTER SHOVELING OR SWEEPING HAS REMOVED SEDIMENT. SEE CITY OF ST. LOUIS PARK STANDARDS AND REGULATIONS
6. PROVIDE THE FOLLOWING MINIMUM COVER OVER THE TOP OF PIPE AS FOLLOWS:
   A. 8' OVER WATERMAIN
   B. 8' OVER SANITARY SEWER
   C. 1.5' OVER STORM SEWER

KEYNOTES	
1	PROPOSED LIGHT DUTY BITUMINOUS PAVEMENT, SEE DETAIL C-5034/C403
2	PROPOSED SITE ENTRANCE, SEE STANDARD PLATE DETAIL ST-2/C402
3	PROPOSED CURB AND GUTTER, SEE DETAIL C-5030/C401
4	PROPOSED PAVEMENT MARKINGS, SEE DETAIL C-5085/C401
5	PROPOSED SIDEWALK, SEE STANDARD PLATE DETAIL ST-9/C402
6	PROPOSED PED RAMP. SEE DETAIL C-5014/C401
7	MILL AND OVERLAY, SEE DETAIL C-5022/C403
8	CONTRACTOR TO ENSURE 18" MINIMUM SEPARATION AT STORM SEWER/WATERMAIN CROSSING. PROVIDE INSULATION PER DETAIL C-4007/C402
9	RELOCATED FIRE HYDRANT WITH NEW GATE VALVE
10	RIBBON CURB, SEE DETAIL C-5090/C403
11	PROPOSED BITUMINOUS PAVEMENT. MATCH EXISTING SECTION AND ELEVATIONS. MINIMUM SECTION SHALL BE PER DETAIL C-5045/C403 "HEAVY DUTY"
12	PROPOSED CONCRETE PAVEMENT. MATCH EXISTING SECTION INCLUDING AGGREGATE BASE AND ELEVATIONS. PROVIDE DOWELS AT JOINT BETWEEN EXISTING AND PROPOSED CONCRETE, SEE DETAIL C-5073/C403
13	INSULATE ENTIRE LENGTH OF 36" STORM PIPE. SEE DETAIL C-4012/C402
14	PROPOSED CROSS WALK
15	PROPOSED IMPROVEMENTS

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CLIENT:

JAPS-OLSON COMPANY

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PROJECT:

PROPOSED EAST PARKING LOT ADDITION
JAPS-OLSON COMPANY
ST. LOUIS PARK, MN

NO	DATE	ISSUE/REVISION	BY
0	06/19/15	ISSUED FOR BID	MAP
1	06/26/15	ADDENDUM #1	MAP

CERTIFICATION:

BID DOCUMENTS
NOT FOR CONSTRUCTION

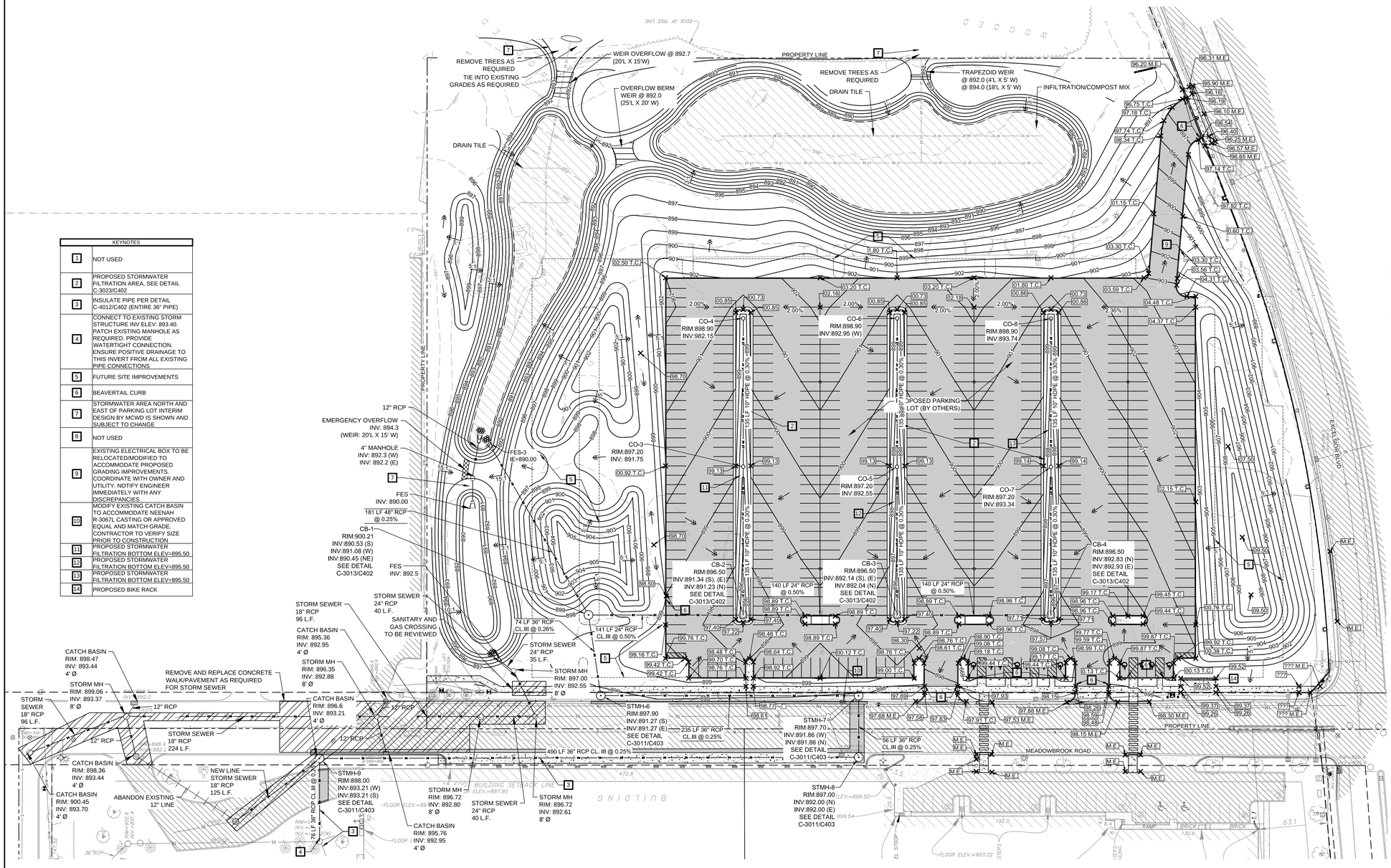
DATE:	DRAWN:	
06/19/15	AJR	
DESIGNED:	CHECKED:	APPROVED:
ARL		

DRAWING TITLE:

SITE, PAVING AND UTILITY PLAN

PROJECT NO:	DRAWING NO:
140218	C300
SCALE: AS NOTED	

KEYNOTES	
1	NOT USED
2	PROPOSED STORMWATER FILTRATION AREA, SEE DETAIL C-3023/C402
3	INSULATE PIPE PER DETAIL C-4012/C402 (ENTIRE 36" PIPE)
4	CONNECT TO EXISTING STORM STRUCTURE INV ELEV: 893.40. PATCH EXISTING MANHOLE AS REQUIRED. PROVIDE WATERTIGHT CONNECTION. ENSURE POSITIVE DRAINAGE TO THIS INVERT FROM ALL EXISTING PIPE CONNECTIONS.
5	FUTURE SITE IMPROVEMENTS
6	BEAVERTAIL CURB
7	STORMWATER AREA NORTH AND EAST OF PARKING LOT INTERIM DESIGN BY MCWD IS SHOWN AND SUBJECT TO CHANGE
8	NOT USED
9	EXISTING ELECTRICAL BOX TO BE RELOCATED/MODIFIED TO ACCOMMODATE PROPOSED GRADING IMPROVEMENTS. COORDINATE WITH OWNER AND UTILITY. NOTIFY ENGINEER IMMEDIATELY WITH ANY DISCREPANCIES.
10	MODIFY EXISTING CATCH BASIN TO ACCOMMODATE NEENAH R-3067L CASTING OR APPROVED EQUAL AND MATCH GRADE. CONTRACTOR TO VERIFY SIZE PRIOR TO CONSTRUCTION.
11	PROPOSED STORMWATER FILTRATION BOTTOM ELEV=895.50
12	PROPOSED STORMWATER FILTRATION BOTTOM ELEV=895.50
13	PROPOSED STORMWATER FILTRATION BOTTOM ELEV=895.50
14	PROPOSED BIKE RACK



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GRADING NOTES

1. PROPOSED SPOT ELEVATIONS AND CONTOURS ARE TO TOP OF GRADE, PAVEMENT OR GUTTER LINE, UNLESS OTHERWISE SPECIFIED.
2. SEE SWPPP SHEET C500 FOR EROSION PREVENTION AND SEDIMENT CONTROL NOTES.
3. SEE SHEET C250 FOR LOCATIONS OF EROSION AND SEDIMENT CONTROL ITEMS. INSTALL PERIMETER EROSION AND SEDIMENT CONTROL ITEMS PRIOR TO CONSTRUCTION.

LEGEND

- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- PROPOSED MATCH EXISTING SPOT ELEVATION
- PROPOSED TOP OF CURB SPOT ELEVATION
- PROPOSED BOTTOM OF CURB SPOT ELEVATION
- DENOTES SURFACE DRAINAGE
- PROPOSED FES
- PROPOSED CATCH BASIN
- PROPOSED CLEANOUT
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED CURB AND GUTTER
- FUTURE SITE IMPROVEMENTS
- MAJOR CONTOUR
- MINOR CONTOUR
- PROPERTY LINE
- RIGHT OF WAY LINE
- SECTION LINE
- ADJACENT PROPERTY LINE
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER (FORCEMAIN)
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD ELECTRIC
- EXISTING FIBER OPTIC
- EXISTING TREE LINE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING HANDHOLE
- EXISTING UTILITY VAULT
- EXISTING METAL COVER
- EXISTING ELECTRIC BOX
- EXISTING CATCH BASIN
- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING COMMUNICATION BOX
- EXISTING WATER MANHOLE
- EXISTING TREE
- EXISTING LIGHT POLE
- EXISTING BOLLARD
- EXISTING PIPE
- EXISTING BITUMINOUS PAVEMENT
- EXISTING CONCRETE PAVEMENT

FOR FURTHER INFORMATION ON LANDSCAPING AND LIGHTING DESIGN, SEE PLANS PREPARED BY OTHERS

SEE DETAIL C-3028/C401 FOR FURTHER DETAIL ON DRAINTILE CLEANOUTS

CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLAN TO OWNER AND ENGINEER FOR REVIEW PRIOR TO MOBILIZATION. SEE SPECIFICATIONS FOR FURTHER DETAIL

STORM SEWER SCHEDULE

CATCH BASIN/MANHOLE	GRATE TYPE (NEENAH)	REMARKS	SIZE
STM CB-1	R-1642	SOLID COVER	48"
STM CB-2	R-4342	INLET	48"
STM CB-3	R-4342	INLET	48"
STM CB-4	R-4342	INLET	48"
STM MH-6	R-1642	SOLID COVER	60"
STM MH-7	R-1642	SOLID COVER	84"
STM MH-8	R-1642	SOLID COVER	84"
STM MH-9	R-1642	SOLID COVER	84"

NORTH

1 C2.0

GRADING AND DRAINAGE PLAN

1"= 40'

0 40' 80' 120'

VAA

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CLIENT:

JAPS-OLSON COMPANY

Japs-Olson Company
Direct mail and commercial print

CLIENT PROJECT NO:

PROJECT:

PROPOSED EAST PARKING LOT ADDITION
JAPS-OLSON COMPANY
ST. LOUIS PARK, MN

NO	DATE	ISSUE/REVISION	BY
A	08/06/15	ISSUED TO WATERSHED	MAP

CERTIFICATION:

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

DATE:	DRAWN:
08/06/15	AJR
DESIGNED: ARL	CHECKED:
APPROVED:	

DRAWING TITLE:

GRADING AND DRAINAGE PLAN

PROJECT NO:	DRAWING NO:
140218	C2.0
SCALE: AS NOTED	

BID PACKAGE SPECIFICATIONS

EARTHWORK PACKAGE for the
PROPOSED EAST PARKING LOT ADDITION
to serve
Japs-Olson Company

in

St. Louis Park, Minnesota

Prepared For:

Japs-Olson Company

Prepared By:

VAA, LLC
2300 Berkshire Lane North, Suite 200
Plymouth, MN 55441

June 19, 2015

Commission No. 140218

BID PACKAGE TABLE OF CONTENTS

EARTHWORK PACKAGE for the
PROPOSED EAST PARKING LOT ADDITION
JAPS-OLSON COMPANY
ST. LOUIS PARK, MINNESOTA

NOTE: Certain "CSI" Divisions are not included in this Specification. This does not relieve Contractor from any requirement of the Project as required by the Contract Documents due to the absence of these particular Divisions.

SECTION 00 50 00

LIST OF CONTRACT FORMS

PART 1 - GENERAL

1.1 THE FOLLOWING IS A LIST OF FORMS APPLICABLE TO THIS PROJECT:

A. Contract Documents:
1. Specification Sections, See Table of Contents.
2. Drawing Sheets, as follows:

SHEET	TITLE
C000	Title Sheet/Drawing Index
C100	Existing Conditions and Removals Plan
C200	Grading and Drainage Plan
C250	Erosion Control Plan
C300	Site, Paving and Utility Plan
C400-C403	Civil Details
C500	Storm Water Pollution Prevention Plan (SWPPP)

END OF SECTION

SECTION 01 11 00

SUMMARY OF WORK AND SPECIAL REQUIREMENTS

PART 1 - DESCRIPTION

1.1 GENERAL SUMMARY OF WORK AND ADDITIONAL DEFINITIONS

A. Owner: Japs-Olson Company

B. Project Location: St. Louis Park, Minnesota

C. General Scope: The Project consists of the complete construction as indicated in the documents for the Earthwork for the Proposed East Parking Lot Addition to serve Japs-Olson Company.

D. Work included: Provide all labor, materials, articles, equipment, incidental items, tools, services, supplies methods, operations and skills in such quantities as may be necessary to complete project within the intent of the Contract Documents. Singular notations and specifications shall be considered plural where plural application is reasonably inferable. Mention or indication of extent of work under any Work Division or Specification Section is done only for convenience of Contractor and shall not be construed as describing all work required under that Division or Section.

E. Coordination: The Project will require close cooperation and coordination between Owner, Contractor and other contractors as required to complete the work. Contractor shall consider such coordination in his Work and schedule the Work of all of his Subcontractors and Suppliers.

F. Identification of Project Documents: Earthwork Package for the Proposed East Parking Lot Addition to serve Japs-Olson Company, dated June 19, 2015, prepared by VAA, LLC.

G. Drawings: The index of Drawings is included in Section 005000. Contractors, Subcontractors and Suppliers shall be bound by the information and requirements provided by the complete set of Drawings. Individual detail sheets (if included) shall be considered with and as a part of the Drawings and the overall Contract Documents.

H. Specifications: The Table of Contents' listing of Divisions and Sections apply to the various trades of Work. Contractor and all Subcontractors shall be bound to the information and requirements of the complete set of Specifications.

J. Examination of Site and Documents: In submitting a bid proposal and in accepting a Contract Award, Contractor represents he has examined the project site and existing facilities as well as the entire set of Contract Documents and agrees to be bound by all conditions of the general location, existing conditions and all documents, without additional cost to Owner.

K. Construction Limits: Shall be coordinated with Owner as required to complete the Project without interruption to Owner's existing operations and/or truck traffic. Where interruption is required, Contractor shall coordinate with Owner to minimize interruption.

1.2 PRIME CONTRACT

A. This Contract includes all work and all items listed in paragraph 1.1D necessary to satisfactorily complete all construction per the Contract Documents (Drawings and Specifications) unless specifically noted otherwise.

B. This Contract does not include any work designated "By Owner" or “By Others” on the drawings.

1.3 PRE-CONSTRUCTION CONFERENCE AND SITE MEETINGS

A. After award of Contract, at time designated by Owner, Contractor and Subcontractors shall attend a Pre-Construction Conference. Procedures to be followed, coordination efforts and similar matters will be reviewed.

B. During construction, periodic site meetings may be held between Owner, Contractor, and Subcontractors at the project site.

1.4 USE BY OWNER

A. Owner reserves the right to let other Contracts in connection with this Project, or in connection with existing buildings. This Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and execution of their work, and shall properly connect and coordinate his work with theirs.

B. Owner reserves the right to jointly occupy the premises with the Contractor in the performance of his duties and functions. Owner also reserves the right to: enter into the Project and premises at all times; and make installations of materials and equipment at appropriate times as the Work progresses. Contractor shall coordinate work and cooperate with Owner to minimize undue interferences.

C. If any part, unit, phase, or the entire project is substantially complete or ready for occupancy, Owner may, upon notice to Contractor, and without prejudice to any of the rights of Owner or Contractor, enter into and make use of the Work that is substantially completed.

1.5 COORDINATION

A. Refer to other sections of Division 1 for requirements and timing relating to coordination, as well as other articles of this section.

B. Contractor shall coordinate and schedule all work, including with Owner where the

work of the Contract may involve or disrupt Owner's normal functions or the work associated with other Contracts.

1.6 CARE AND USE OF SITE AND DEVELOPMENT OF SITE IMPROVEMENTS

A. Fire protection, access and people egress must be maintained at all times and work must be arranged to permit immediate access by fire fighting equipment.

B. Existing features or structures shall be protected from all work associated with this Contract's construction.

C. Warning signals, barricades and other protective measures for hazards shall be in place and operate 24 hours per day.

D. From start of work to completion, Contractor is responsible for the care of the construction areas and the premises which are affected by operations of work of his Contract, subject to the right and use of Owner and Owner's workmen thereon. Return all existing improvements on or about the property which are now shown to be altered, removed or otherwise changed to conditions which existed previous to starting work, or better.

E. Contractor shall be solely responsible for protection and restoration of all features on or about site. Owner and Engineer may caution Contractor about conditions which they observe, but shall not be held responsible to provide such advice or for enforcing any protection.

1.7 CONTRACTOR’S SAFETY PROGRAM

A. Contractor shall provide a project specific work safety plan for Owner’s review.

END OF SECTION

SECTION 01 23 00

ALTERNATES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Bidders shall submit bid proposals for alternates as described in the drawings.

B. Submit Base Bid and Alternate increase/decrease prices to the Contract Base Bid as requested on the Bid Forms.

C. Owner reserves the right to accept Alternates in any order, accept any Alternate which he deems to be in his best interest, or reject all Alternates.

D. Alternates accepted by Owner may be used to determine the successful Bidder.

PART 2 - REQUIREMENTS

2.1 ALTERNATES

A. Contractors bidding alternates must:
1. Adhere to the flow and overall scope requirements of Base Bid.

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Section defines procedure for the following submittals required of Contractor and his Subcontractors and/or Suppliers.

PART 2 - REQUIRED SUBMITTALS

2.1 SHOP DRAWINGS, EQUIPMENT BROCHURES AND PRODUCT DATA

A. Required submittals of shop, fabrication, or erection drawings and product data and similar information shall be submitted in accord with this Article.

B. "Shop Drawings" shall mean all similar types of product data, including specially prepared drawings, standard prints, brochures and other descriptive data.

C. Drawings submitted shall be marked with name of project, Contractor, whether "preliminary" or "final" in nature, and shall bear stamp of approval of the Contractor, as evidence that drawings have been checked (including field dimensions) by Contractor. Contractor shall field verify or otherwise determine interferences or conflicts between various materials and resolve dimensions or methods resulting therefrom as approved by Owner. Any drawing submitted without Contractor's approval will not be considered or reviewed and will be returned to Contractor.

D . It is not intended that field verified dimensions are required prior to Owner’s review and acceptance of shop drawings, unless it is practical to do so prior to submission. If however, field dimensions require changes in the shop drawings in size, detail and similar considerations, revised shop drawings shall be submitted for review and acceptance.

F. Contractor shall submit shop drawings to Owner with such promptness as to cause no delay in his work or the work of any other Contractor on the Project. Adequate time (minimum of one week) shall be allowed for checking by Owner.

G. Prepared shop drawings shall be submitted to the Owner in the form of three prints of each sheet or an AutoCAD electronic file. Owner will retain one print for his record and return one print for Contractor's record and one stamped print for Contractor's use in distributing approved prints to others as required by Contractor. Drawings returned to Contractor marked "not accepted" or "resubmit" shall be corrected and resubmitted to Owner. The final shop drawings shall show field verified dimensions.

H. Provide layout drawings where necessary for field use or required by Owner. Submit product data in a minimum of 3 copies unless otherwise specified, including an attached cover sheet with information required by paragraph "D" above, an index of each page in the submittal and with space for notes and acceptance stamps. Should additional copies be required for the two manuals for Owner, or for other Contractor purposes of information and coordination, submit the additional copies. If acceptable, copies will be so stamped and all but two copies will be returned to Contractor. If notations indicate revision of data is required, resubmit as directed.

I. Checking and acceptance of shop drawings by Owner is for general conformance with design intent and Contract requirements and does not relieve Contractor of responsibility to verify accuracy of dimensions, obtain field dimensions, coordinate dimensions with work of others, and prevent interference with other equipment and other features of work. If a drawing as submitted is in accordance with Contract requirements, or has specifically indicated deviation from Contract requirements which Owner finds to be in best interest of Owner and to be so minor as not to involve a change in contract price or time for performance, Owner will accept drawings.

J. Acceptance of shop drawings and setting drawings will be general and, except as otherwise provided in preceding paragraph, shall not be construed as: (1) permitting and departure from Contract requirements, (2) relieving Contractor of responsibility from errors in details, dimensions or otherwise that may exist, (3) accepting departures from additional details or instructions previously furnished by Owner and, (4) confirming clearance or lack of interference.

K. Checking and acceptance by Owner shall not relieve Contractor of responsibility for deviations from drawings and specifications unless such deviation is specifically called to Owner’s attention by a specific indication of "note deviation" or similar clear and bold indication at time of submission, nor shall it relieve him of responsibility for errors or omissions in shop drawings.

L. Contractor shall coordinate the work of all Subcontractors. Shop drawings shall be provided or exchanged as necessary or beneficial to the coordination effort, with the exchange directly by Contractor and Subcontractor involved, not through Owner.

2.2 LIST OF MATERIALS

A. Within ten (10) days after Award of the Contract, Contractor shall submit 3 copies of a complete list of all materials, products, and equipment proposed to be used to Owner for acceptance. Materials shall not be ordered until the proposed listed materials are accepted.

B. Where two or more makes or kinds of items are named in the specifications (or additional names are listed in an addendum), Contractor shall state which particular make or kind of each item he proposes to provide.

C. This list shall be submitted on a form arranged in order of specification sections. The items listed shall fully conform to all Project requirements, all materials are subject to Owner's acceptance if it differs from that of the Contract Document.

D. The list shall clearly identify the material, product or equipment by manufacturer and brand by listing the names for all items, including those where only one material or product is specified. Each and all materials, products and equipment shall be specific names, not listed "as specified".

2.3 OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS

A. Not Applicable

2.4 RECORD SET OF "AS BUILT" DRAWINGS

A. Contractor shall provide a record set of Drawings to Owner at the completion of the Contract.

B. During construction, Contractor shall maintain a clean set of Drawings for the sole purpose of recording changes and actual "as installed" information.

C. Marking of the record set shall be done methodically as work progresses, clearly and neatly.

D. As a general guide, the type of information to be recorded on the record set includes: (1) revisions made, except minor or noncritical dimensions; (2) omissions, including work omitted by accepted alternates; (3) dimensioned locations of major or main utility lines, such as main conduit runs, piping mains and similar work; (4) locations of control valves; (5) additions to the work; (6) changes in significant details (i.e.: for water protection); (7) changed footing or other elevations; (8) other similar data.

2.5 OTHER SUBMITTALS

A. Provide other required submittals as specified on other Sections.

END OF SECTION

SECTION 01 40 00

QUALITY REQUIRMENTS

PART 1 - GENERAL

1.1 TESTING

A. Refer to technical specifications for specific testing requirements and methods.

B. Unless otherwise provided in the specifications, Contractor shall provide all materials, samples, specified in various sections of specifications, or as directed by Owner.

C. Tests shall be provided and accomplished in accordance with the standard used as the reference for the particular material or product, unless other test methods or criteria are specified. In the absence of a referenced standard, tests shall be accomplished in accordance with the applicable ASTM Standards or test methods.

1.2 QUALIFICATIONS OF TESTING AGENCY

A. "Approved independent testing laboratory" shall mean an independent testing agency acceptable to the Owner and possessing the professional qualifications and equipment to perform the specified tests and to evaluate and report the results.

1.3 PAYMENT FOR TESTS

A. Unless otherwise indicated, the cost of tests shall be paid by the Owner.

1.4 TESTS TO DEMONSTRATE QUALIFICATION

A. In addition to tests specified, should Contractor propose a product, material, method or assembly that is of unknown or questionable quality to the Owner, Owner may require and order suitable tests to establish a basis for acceptance or rejection. Such tests will be paid for by Contractor, or by the Subcontractor requesting approval. "Standard" test reports on "similar" material will not be acceptable.

B. Owner reserve the right to require certification or other proof that the material, assembly, equipment, system or other product furnished or proposed to be furnished, for this Project is in compliance with any test or standard called for. The certificate shall be signed by a representative of the independent testing laboratory.

C. Any tests required to qualify Contractor or any of his workmen for any phase of the work, and any test of a method, system or equipment that may be required by specification or law to qualify the item for use, shall be made or taken without cost to the Owner.

1.5 INSPECTIONS

A. Should the specifications, CM's instruction, laws, ordinances or any public authority require any work to be inspected or approved, the Contractor shall give timely notice of its readiness for inspection and a reasonable date fixed for such inspection. If any work requiring inspection should be covered up without approval or consent of the approving agency, it must be uncovered for examination at Contractor's expense.

1.6 CERTIFICATES

A. Except for test reports provided and signed by approved independent testing laboratories, all certificates required by the specification shall be signed by an authorized official of the firm providing the certificate, with the signature notarized, when such certificates by the Producer are acceptable to the CM and Owner.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES

PART 1 - CONSTRUCTION LIGHT AND POWER, WATER, TELEPHONE

1.1 TEMPORARY LIGHT AND POWER

A. General:
1. Owner shall provide and pay for electrical power for use during construction. Contractor shall verify the existing service available, its location and provide and pay for their own temporary construction connections. The service shall be protected from damage at all times.
2. Contractor shall provide temporary wiring, cords, outlets, lamps, devices and connections as required. Installation, service, wiring and devices shall be safe, substantially supported and adequately connected. Demand shall not exceed service and any damage resulting from misuse, faulty equipment or overloading shall be paid for by Contractor.
3. Energy costs and services for operating equipment such as welders, grinders, pipe threaders and similar equipment requiring power greater than the existing available services, shall be provided for and paid for by Contractor.
4. Contractor shall remove all temporary installations installed by him after permanent system and fixtures are installed.

B. Service After Occupancy: When the Project is substantially complete and is occupied by Owner (except for minor spaces used for storage), Owner will pay energy costs associated with lighting.

1.2 CONSTRUCTION WATER

A. General: Owner shall provide and pay for water service for use during construction. Contractor shall verify the existing service available, its location and provide his own hoses (or piping), connections and other equipment to use the water. The service shall be protected from damage at all times.

1.3 TELEPHONE

A. Contractor shall provide and pay for a telephone at the project site for use during construction. Subcontractors shall either install telephone or make other arrangements with Contractor to use his telephone.

PART 2 - OFFICE, TOILETS, STORAGE

2.1 OFFICES

A. Contractor and subcontractors may maintain an office/trailer at the project site.

Contractor shall maintain and have readily available for reference by the Owner, a copy of the Contract Documents, shop drawings, correspondence and all other project related information.

2.2 SANITARY FACILITIES

A. Contractor shall provide and pay for sanitary facilities (Satellite type) during construction. Toilets shall be well maintained, not create a nuisance and be screened from view. Subcontractors shall be required to use these facilities.

2.3 STORAGE AND ENCLOSURES

A. Contractor shall provide storage and enclosures to protect and preserve his materials stored at and off the site. Materials such as wood, metal, cement, masonry materials, equipment of any type, conduit and similar materials, shall not be piled directly on ground. Covering shall be durable, watertight, fully cover sides as well as top, substantial and well anchored to prevent blowing away. Shed type of enclosures shall be provided for easily damaged and small items. Any protection which becomes damaged shall be replaced immediately.

B. All storage facilities shall be neatly constructed and maintained, including protective covering. Loose, torn, or inadequate coverings shall be immediately replaced.

C. Any temporary enclosures of the building shall be neatly fabricated, durable, maintained in good condition.

D. When storage or enclosure facilities are no longer required, they shall be removed from the site by Contractor.

PART 3 - MISCELLANEOUS PROVISION

3.1 SNOW REMOVAL

A. In the event of snowfall, Contractor will be responsible for removal within the construction limits during construction until Owner makes beneficial use of the facility.

3.2 FENCING AND BARRICADES

A. General Fencing: Contractor is responsible to provide and maintain fencing around excavations and hazards, and shall protect adjacent features from damage from his operations. Fencing shall be adequate to prevent accidents and safeguard the public and workmen. Fencing shall be neat and well maintained.

B. Barricades: Contractor is responsible to provide and maintain barricades where required to warn of a hazard and to stop the public and workmen. Barricades shall have properly operating warning lights, illuminated or flashing at all times.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Products.

B. Product delivery requirements.

C. Product storage and handling requirements.

D. Product options.

E. Product substitution procedures.

1.2 PRODUCTS

A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise.

1.3 PRODUCT DELIVERY REQUIREMENTS

A. Transport and handle products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store and protect products in accordance with manufacturers' instructions.

B. Store with seals and labels intact and legible.

C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

D. For exterior storage of fabricated products, place on sloped supports above ground.

E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

F. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.

G. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

H. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit request for substitution for any manufacturer not named in accordance with the following article.

1.6 PRODUCT SUBSTITUTION PROCEDURES

A. Owner will consider requests for Substitutions only within 30 days after date of Owner-Contractor Agreement.

B. Substitutions may be considered when a product becomes unavailable through no fault of Contractor.

C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

D. A request constitutes a representation that Bidder:
   1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
   2. Will provide same warranty for Substitution as for specified product.
   3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension which may subsequently become apparent.
   5. Will reimburse Owner for review or redesign services associated with re-approval by authorities having jurisdiction.

E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals, without separate written request, or when acceptance will require revision to Contract Documents.

F. Substitution Submittal Procedure:
   1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
   2. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
   3. Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 62 00

SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Section establishes criteria for selecting options and limitations of substitutions.

PART 2 - MATERIALS, EQUIPMENT AND PROPOSED SUBSTITUTIONS

2.1 DEFINITIONS

A. The word "product" herein shall mean any material equipment, assembly, system, manufacturer, brand, trade name, element, item or similar description as applicable. All products shall be new, free from defects, perfect and complete, unless specifically noted otherwise. All like products for the Work shall be by the same manufacturer unless otherwise specified. Contractor shall place product orders on a timely basis as required to satisfy all Contract requirements.

B. Where terms "equal to", "accepted by", "approved by", or other synonymous terms are used, it shall mean that acceptance of any proposed product is vested in Owner, whose decision shall be final and binding upon Contractor. Except where "no substitutions" or "same as existing" may be noted, the term "or acceptable equal as determined by Owner" shall be implied throughout, subject to "prior approval" conditions specified in the Instruction to Bidders. Acceptance or rejection of a proposed product or deviation may be based on any of the factors which establish the measure of quality and the determination may or may not express the reason for the decision, at Owner’s option.

2.2 PRODUCTS

A. For products specified in accordance with a Federal Specification, ASTM, American Standard Specifications or similar association standards, upon request Contractor shall provide an acceptable affidavit certifying that product furnished for this Project complies with the particular standard specifications. Where necessary, request or specified, supporting test data shall be submitted to substantiate compliance. The manufacturer is subject to Owner’s acceptance.

B. For products specified or shown by describing proprietary items, model numbers, catalog numbers, manufacturers, trade names or similar reference, Contractor is obligated to provide and use such products. The reference is intended to establish the criteria and measure for the quality and performance which has been determined as requisite and necessary for the Project. By execution of the Contract, Contractor agrees and understands the Work will be accomplished by using materials, products, equipment and manufacturers specified or accepted for bidding by addenda. Any product or manufacturer used as basis of the technical specifications shall generally set the criteria, including quality and performance, for products and manufacturers

used for the Work. It shall be expressly understood that any other product or manufacturer listed in Specification or Addenda will be acceptable for use in the Work only if they fully comply with all specified requirements and match the basic and essential features quality and other criteria of the product used as the basis for the Specification, as determined by the Owner. For final acceptance for use in the work, Owner reserves the right to accept or reject any proposed deviations from the requirements. Should a proposed product by unable to meet the specified requirements, including the features quality and performance of the product or manufacturer used as the basis of the Specifications, the product shall not be used.

2.3 POST BID SUBSTITUTION LIMITATIONS

A. Requests for the use of alternate products after bids have been received will not be considered, nor changes allowed in the accepted list of products, except when the specified or accepted product subsequently is determined as not meeting the requirements of the Contract Documents or the product becomes unavailable.

END OF SECTION

SECTION 02 32 00

SUBSURFACE SOIL INVESTIGATION/PHASE I ENVIRONMENTAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Geotechnical Evaluation Report:
   1. The Geotechnical Evaluation Report, Project B1500402.00, dated February 27th, 2015 was prepared by Braun Intertec Corporation.

B. Phase I Environmental Report:
   1. Phase I Environmental Site Assessment, dated September 2009 prepared by Wenck Associates, Inc., Wenck File #2089-03.

C. Use of data:
   1. The report was obtained by the Owner and is available for bidders' information, but is not a warranty of subsurface conditions.
   2. Bidders should visit the site and acquaint themselves with existing conditions.
   3. Prior to bidding, bidders may make their own subsurface investigations to satisfy themselves as to site and subsurface conditions, but such investigations may be performed only under time schedules and arrangements approved in advance by the Owner.

END OF SECTION

SECTION 02 41 13

SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Conditions of the Contract (General, Supplementary and Other Conditions), the General Requirements (Sections of Division One) and the Drawings Apply to the Work of this Section.

B. Selective Site Demolition of Designated Items; Including Removal of Materials from Site and Legal Disposal Off-Site, as described on the Drawings and Specifications. All demolition work required to provide a complete finished project may not be indicated on the Drawings. Some of the items are to be salvaged for reinstallation, as indicated on the Drawings. These items include, but are not limited to:

1. Existing Structures; Including Below Grade Foundations.
2. Asphalt Paving Areas; Including Saw-Cutting.
3. Concrete Walks, Slabs and Curbs; Including Saw-Cutting.
4. Gravel paving areas.
5. Concrete Curb & Gutter; Including Saw-Cutting.
6. Tree and Landscaping Removal; Including Roots.
7. Bulkheading of Storm Piping
8. Light Poles, Bollards, Fixtures and Associated Foundations.
9. Hydrants
10. Site Signage and Posts.
11. Rock, rubble, and other inorganic debris encountered

C. Demolition and Removal of Identified Utilities.

D. Remove and protect products indicated to be removed, which are noted to be installed in new locations, reinstalled in same location, or are to be retained by the Owner, unless indicated to be performed as part of the work of others. Materials to be salvaged that are damaged during removal operations shall be replaced at no additional cost to Owner.

E. Removal of existing hazardous products shall be completed before commencement of the Work, by Owner's separate hazardous materials abatement contractor, unless abatement work is required to be performed in coordination with work as part of the Project.

F. Install and maintain erosion and sediment control devices as necessary to facilitate demolition operations and prevent sedimentation off-site.

1.2 RELATED SECTIONS

A. Section 014000 – Quality Requirements.

B. Section 015000 – Temporary Facilities.

C. Section 016000 – Product Requirements.

D. Section 310000 – Earthwork.

E. Section 312500 – Erosion and Sediment Control.

1.3 RELATED DOCUMENTS

A. State DOT Standard Specifications for Highway Construction, latest Edition including Addenda.

1.4 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Schedule: Indicate demolition and removal sequence and location of salvageable items, location and construction of barricades, fences, and temporary work.

1.5 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 013300.

B. Accurately record actual locations of capped utilities, subsurface obstructions, and any other item relocated.

1.6 REGULATORY REQUIREMENTS

A. Conform to Local Governmental Unit and State regulations and all applicable codes for demolition of site structures, safety of adjacent structures, dust control, stormwater run-off control and disposal.

B. Contractor is responsible for obtaining all required permits for the scope of work specified in the Contract Documents prior to construction.

C. Contractor shall provide copies of permits and approvals received to Owner and Engineer.

D. Notify affected utility companies before starting work and comply with their requirements, as outlined under provisions of Section 014000.

E. Do not close or obstruct roadways, sidewalks or hydrants without permits.

F. Test soils around buried tanks, if found, for contamination.

G. Conform to applicable building codes and State regulations for dust control and run-off control.

1.7 SITE CONDITIONS

A. Protection of Persons: Owner and public activities will continue in and about the site during construction. Install barricades as part of this Work and post with warning lights.

B. Contractor shall examine areas and conditions under which work in this section will be preformed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

C. Existing Utilities: Locate and mark all existing utilities that are on site where Work is to be performed. Coordinate work to protect existing utilities and maintain continuous service to Owner's facility and surrounding areas. Hand excavate when required to protect underground utilities. Contractor shall be responsible for protection of existing underground and aboveground utilities within the project limits, unless otherwise noted for removal.

D. Bench Marks and Monuments: Maintain bench marks and monuments existing on site.

E. Protection of Existing Property to Remain: Protect existing plants, equipment and structures that are in areas where Work will be performed and which are to remain. Repair or replace existing property which is to remain that is damaged by the Work of this Contract, per Owner's satisfaction, at no cost to the Owner.

F. Contractor shall be responsible to coordinate the work with the local utility companies, City of St. Louis Park and owner; all restoration work required to bring site to its original or proposed condition.

G. Contractor shall conduct demolition operations and removal of debris in a manner to minimally interfere with traffic of adjoining streets, driveways, and walkways. No blocking or closing of streets, driveway, or walkways shall occur without written approval and/or necessary permits. Contractor shall provide alternate routes when necessary to obstruct streets, driveways, or walkways. Any traffic control required as part of the project shall meet the requirements set forth in the MMUTCD. Contractor is responsible to prepare and submit to the Engineer a detailed traffic control plan prior to beginning construction operations.

PART 2 - PRODUCTS

2.1 DEMOLITION FILL MATERIALS

A. Fill Materials: Types specified in Section 310000 – Earthwork.

2.2 EROSION CONTROL AND SILT FENCES

A. Reference to Section: 312500 - Erosion and Sediment Control.

PART 3 - EXECUTION

3.1 PREPARATION

A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Provide, erect and maintain temporary barriers and security devices at locations approved by Engineer.

C. Protect existing landscape materials, appurtenances, and structures that are not to be demolished.

D. Prevent movement or settlement of adjacent structures. Provide bracing or shoring.

E. Mark location of utilities.

F. Carefully identify limits of selective demolition in the presence of the Engineer.

G. Before starting demolition work, thoroughly examine areas where work will be performed. Photograph existing surfaces, equipment, and surrounding properties which could be misconstrued as being damaged as a result of demolition work.

H. Submit photographs to Owner before starting demolition work.

3.2 DEMOLITION REQUIREMENTS

A. Conduct site demolition to minimize interference with adjacent structures.

B. The contractor shall make every effort to limit the area of disturbance and protect existing condition. Contractor shall promptly repair existing features to remain which are damaged by demolition work, at no additional cost to Owner.

C. If adjacent structures appear to be in danger, cease demolition operations immediately. Contractor shall take steps immediately to mitigate danger and take immediate actions to prevent damage. Notify Owner, and do not resume operations until directed.

D. Conduct operations with minimum interference to public or private accesses. Maintain protected egress and access at all times.

E. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon or limit access to their property.

F. Sprinkle work with water to minimize dust. Provide hoses and water connections for this purpose.

3.3 CLEARING AND REMOVAL

A. Removal Operations: Perform removal operations that may endanger new construction prior to construction of affected Work.

B. Compliance with Instructions, Ordinances and State Laws: Comply with all applicable local and state laws, ordinances, rulings and regulations regarding disposals, signs, advertising, traffic corners, danger signals, barricades, fire protection and safety.

C. Disposal of Materials and Debris: Dispose of debris resulting from the removal and demolition operations in accordance with specific regulations, laws, and ordinances.

D. Removal of Existing Structures: Remove and dispose of all structures, except structures specified to be removed by others or those that are indicated to remain. Adjust elevation of manholes designated to remain to meet proposed finish elevations.

E. Removal of Existing Pavements: Do not damage existing pavement indicated to be retained. In removing concrete and bituminous pavements, sidewalks, and similar structures, where the cut will be exposed in the finished Work, the structure shall, unless the removal is made to an existing joint and unless determined otherwise by the Engineer, be sawed along the removal lines with a concrete saw to a depth of not less than half (1/2) the thickness of the concrete or bituminous before breaking off the concrete or bituminous. In such cases, the use of wedges, driven into the saw cut to break off the portion to be removed, will not be permitted. Elsewhere, cut and chip structures to true lines and vertical faces.

F. Removal of Trees, Stumps, Brush and Vegetation: Clearing operations include cutting and removal of trees, shrubs, bushes, windfalls and other vegetation in the designated areas. Grubbing operations include removing and disposing of the stumps, roots and other remains in the construction fill area to a depth as determined by the Geotechnical Engineer.

G. Disconnect, remove and cap designated utilities within demolition areas. Shut off, cap and otherwise protect existing public and private utility lines in accordance with the governmental or private agency having jurisdiction.

H. If hazardous materials are encountered that were not removed by hazardous materials abatement contractor, or its presence is suspected during demolition operations, stop work and notify Owner. Owner will advise contractor of course of action that will be taken.

I. Remove all demolished materials from the site, except existing Base Course aggregate and pavements designated for reclamation and reuse. Include the cost of legal disposal of the demolished materials in the Bid Price, NO additional compensation will be allowed.

1. Existing Base Course aggregate and pavements may be salvaged and reused as approved by the Geotechnical Engineer. Stockpile reusable material, utilize appropriate methods of erosion control (312500), and protect from contamination.

3.4 CLEANING

A. Clean site of all debris and unused materials, and remove from site.

B. Keep all public roadways free of mud, soil and debris to satisfaction of regulatory agencies.

C. Repair demolition performed in excess of what was required.

D. Repair damage on and off the Project site as a result of demolition work.

E. Repair structures and surfaces to match conditions existing before start of demolition work or to match new adjacent constructed as directed by Owner.

END OF SECTION 024113

SECTION 31 00 00

EARTHWORK

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Conditions of the Contract (General, Supplementary and Other Conditions), the General Requirements (Sections of Division One) and the Drawings Apply to the Work of this section.

B. Cut, fill, excavate, backfill, compact and grade the site as necessary to bring the roads, drives, paved areas and open areas to the lines and grades indicated on the drawings minus applicable hold downs.

C. The Work includes, but is not necessarily limited to:

1. Site preparation, protection and special precautions.
2. Stripping operations, disposal of surface vegetation and stockpiling of soils to be re-used.
3. Importing approved soils for fill.
4. Excavation and removal (off-site) of soils not to be re-used.
5. Roadway, parking areas, drive and walk subgrade preparation.
6. Excavation for pavements; including roadways, parking areas, and walkways.
7. Dressing of graded areas, shoulders and ditches.
8. Rough grading including cutting, filling and compaction operations and sub-grade preparation prior to test rolling.
9. Fine Grading; including shaping and tolerancing following test rolling immediately prior to placement of aggregate base and sub-base courses and pavements.
10. Finish Grading including shaping and dressing of surfaces immediately prior to turf establishment and other surface treatments.
11. Relocation of existing soils on-site for specific uses; including topsoil, structural fill under parking lots, roads and building areas, as described in the geotechnical report.

D. Soil Corrections: See Geotechnical Report.

1. There may be some soils correction work required. Refer to compacted fill as outlined in this Section and Geotechnical report.

E. Classification: All excavation is unclassified and excavation of every description, regardless of material encountered within the grading limits of the project, shall be performed to the lines and grades indicated on the Drawings.

1.2 RELATED SECTIONS

A. Section 014000 - Quality Requirements.

B. Section 015000 – Temporary Facilities.

C. Section 024113 - Selective Site Demolition.

D. Section 311000 - Site Clearing.

E. Section 312333 - Trench Excavation and Backfilling for Utilities.

F. Section 312500 - Erosion and Sediment Control.

G. Section 313700 – Rip Rap

H. Section 321123 – Aggregate Base Courses

I. Section 321216 – Asphalt Paving

J. Section 321313 – Exterior Concrete Paving

K. Section 329200 – Turf and Grasses

L. Section 334000 – Storm Drainage Utilities.

1.3 RELATED DOCUMENTS

A. State DOT Standard Specifications for Highway Construction, latest Edition including Addenda.

B. The Geotechnical Evaluation Report, Project B1500402.00, dated February 27th, 2015 was prepared by Braun Intertec Corporation.

C. Phase I Environmental Site Assessment, dated September 2009 prepared by Wenck Associates, Inc., Wenck File #2089-03.

1.4 DEFINITIONS

A. Open Areas: Open areas are those areas that do not include building sites, paved areas, street right-of-ways and parking areas.

B. Grading Limits: The area of the existing which is disturbed and affected by the total scope of the work which is defined in the contract documents.

C. Clearing and grubbing: Removal of organic and inorganic materials which are at the surface and encountered below the surface which are noted to be removed by Contract Documents or as unsuitable for reuse in subsequent earthwork operations.

D. Stripping: Removal of organic surface soils which are identified in the Geotechnical report and soil boring logs as topsoil. Topsoil to be free of organic vegetation and inorganic materials.

E. Maximum Density: Maximum weight in pounds per cubic foot of a specific material.

F. Optimum Moisture: Percentage of water in a specific material at maximum density.

G. Rock Excavation: Excavation of any hard natural substance, which requires the use of explosives and/or special impact tools such as jack hammers, sledges, chisels or similar devices specially designed for use in cutting or breaking rock, but exclusive of trench excavating machinery. To be considered as rock excavation, the material shall be continuous; individual boulders or rocks in soil will not be considered rock excavation.

H. Muck: Materials unsuitable for foundation because of organic content, saturation to the extent that it is somewhat fluid and must be removed by dragline, dredge or other special equipment, are designated as muck. No extra payment will be made for muck removal.

I. Unsuitable Material: Unsuitable material is defined as earth material unsatisfactory for its intended use and as classified by the soils technician. In addition to organic matter, sod, muck, roots and rubbish, highly plastic clay soils of the CH and MH descriptions, and organic soils of the OL and OH descriptions, as defined in the Unified Soil Classification System shall be considered as unsuitable material. See Geotechnical Report for additional information.

J. Suitable Material: Where the term suitable material is used in specification sections pertaining to earthwork, it means earth or materials designated as being suitable for their intended use by the Geotechnical Engineer or the Engineer. Suitable material shall be designated as meeting the requirements of the Unified Soil Classification System types SW, GW, GC, SC, SM, ML, CL or as designated in these specifications. See Geotechnical Report for additional information.

K. Select Material: Select material is defined as granular material to be used where indicated on the Drawings, or where specified herein consisting of soils conforming to the Unified Soil Classification System types SW, SM, GW or GM or as otherwise approved by the Geotechnical Engineer as select fill. Select material shall contain no stones or rubble larger than one and one-half (1-1/2) inch (40 mm) in diameter. See Geotechnical Report for additional information.

L. Crushed Stone (Gravel): Aggregate or equal conforming to ASTM C33. See Geotechnical Report for additional information.

M. Excavation: Excavation is defined as unclassified excavation of every description regardless of materials encountered.

1.5 QUALITY ASSURANCE

A. Codes and Standards: Perform excavation work and disposal of debris in accordance with applicable requirements of governing authorities having jurisdiction.

B. All excavations and trenches shall comply with the requirements of O.S.H.A. 29 CFR, Part 1926, Sub-Part B, “Excavations and Trenches”.

C. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

D. A testing laboratory contracted by the Owner will make such tests and inspections as are specified herein. The Contractor shall schedule his work so as to permit a reasonable time for testing before placing succeeding lifts of fill material and shall keep the laboratory informed of his progress. The cost of the initial tests shall be paid for by the Owner. Subsequent tests required as a result of improper compaction shall be paid for by the Contractor.

E. All fill materials (subsoil, topsoil, planting soil and gravel) shall come from sources free of chemical contaminants. This includes sources contaminated by chemicals and the chemical run-off from industrial areas. Also, the insecticides and herbicides used in farming, nurseries, etc. Use materials from the existing site whenever possible.

F. Should fill materials that are contaminated be encountered on site, Contractor shall verify with Owner and their consultants on appropriate course of action for placement of materials.

G. Soils Testing

1. At a minimum the following test shall be preformed (additional test may be required by the owner, engineer, soils engineer and Governmental agency having jurisdiction):
    a. Laboratory test of proposed fill: ASTM D75
    b. Laboratory Compaction Tests: ASTM D698
    c. Field Density Tests: ASTM D6938
2. Field density tests of compacted fill, backfill and base materials shall be made every other layer (lift) at intervals selected by the Soils Engineer, or specified within the geotechnical report. Additional tests shall be taken within trenches of underground piping and structures
3. The Owner shall secure and pay for the services of a testing laboratory to conduct the soil testing program. All soils testing shall comply with the Local Governmental Unit and State DOT Standards.
4. A qualified representative (Soils Engineer) of the testing laboratory shall be present at the site during the performance of the work required under this Section. Contractor shall notify the testing laboratory a minimum of two days in advance of required testing and shall coordinate all testing with Engineer. Earthwork operations which require testing and inspecting services shall not be performed unless soils testing laboratory inspector is present. These services include but are not limited to the following:
    a. Inspect subgrade soils after excavation of soils within areas to receive paving have been excavated to specified depth to determine if subgrade materials are acceptable.
    b. Inspect and approve or reject soils brought from off-site which are proposed to be used as engineered fill in earthwork operations.
    c. Observe the trenching and placement of all pipe and draintile systems to ensure that the requirements of the Contract Documents are being met.

d. Inspect fill/backfill operations within all areas to receive paving to ensure acceptability of backfill material being placed, method used to place backfill, thickness of layers being placed, and compaction of material. Make density tests as backfilling occurs to ensure that material is being compacted in accordance with specified requirements.

5. In the event the inspections and tests indicate the work has not been performed in accordance with the Drawings and Specifications, the materials shall be removed and the work redone and retested, at no additional cost to the Owner.

6. Contractor is responsible for obtaining all required permits for the scope of work specified in the Contract Documents prior to construction.

1.6 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Samples: Submit ten lb. (4.5 kg) sample of each type of fill to Independent Testing Laboratory, in air-tight containers.

C. Test Reports: Submit Independent Testing Laboratory reports which pertain to testing services performed at the site under provisions of Section 014000.

D. Reports of all inspections and tests performed by the Soils Engineer required by this Section shall be submitted to the Owner, Engineer and Contractor as soon as practical during construction of the Work.

1.7 SITE CONDITIONS

A. Protection of Persons: Owner activities will continue in and about the site during construction. Install barricade fencing (snow fence), as necessary, to provide a safe environment between construction work and pedestrian circulation.

B. Existing Utilities: Contractor shall locate and mark all existing public and private utilities, which are on site where work is to be performed. Contractor shall perform work in manner which will avoid damage to existing utilities which are to remain. If damage occurs, Contractor is responsible for restoration at no cost to owner. Contractor shall include all costs associated with locating and protecting existing public and private utilities.

C. Bench Marks and Monuments: Maintain benchmarks and monuments existing on site.

D. Protection of Existing Property to Remain: Protect existing plants, equipment and structures which are in Work area and which are to remain. Repair or replace existing property, which is to remain that is damaged by the work, to Engineer's satisfaction and at no cost to the Owner.

E. Prior to Construction, the contractor shall make their own subsurface investigations to satisfy themselves as to site and subsurface conditions, but such investigations may be performed only under time schedules and arrangements approved in advance by the Owner.

F. Prior to construction, a pre-earthwork meeting shall be conducted. Arrangements for the meeting shall be by the contractor. Persons in attendance shall include:

a. Owner

b. Architect's project manager or other designated representative.

c. Construction Manager

d. Soils Testing Laboratory Engineer and Field Representative.

e. Contractor's Project Manager and Field Representative.

f. Contractor's Earthwork Subcontractor.

The objective of the meeting is to review and establish the following items:

a. Responsibility of the soils testing laboratory and their field representative.

b. Contractor's responsibility to contact soils testing laboratory prior to earthwork operations (per 1.05 F4) being performed which require the presence of the soil testing laboratory's inspector.

c. The Contractor's responsibility to ensure that the soil testing laboratory inspector is on-site during the presence of earthwork operations.

d. Review of acceptable materials to be used in earthwork operations and their source.

e. Review of proposed procedures for earthwork operations specified within this section, including stripping, excavation requirements, backfilling requirements, and compaction requirements.

f. Review required depth of excavation in all areas to receive paving.

g. Review of work within this section with other site work taking place which is not specified within this section and the coordination which is required.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Soil materials use as fill, backfill, subgrade for structures or pavements, embankments, or site grading shall consist of suitable material as found available on site, until such supply of on-site material is depleted.

B. Suitable materials may be provided from on-site borrow areas, if acceptable material as approved by the Geotechnical Engineer is available on site. The use of on-site borrow areas shall be by authorized by the Owner.

C. Any Existing gravel, concrete, and asphalt to be demolished as part of the project that is salvaged for reinstallation as fill should be verified with the Geotechnical engineer prior to installation.

D. Should the quantity of suitable on-site material be insufficient to complete the Work, suitable borrow material as approved by the Geotechnical Engineer shall be provided from off-site sources by the Contractor at no additional expense to the Owner. The Contractor is responsible to calculate the quantity needed from off-site sources, if any in their bid.

E. Suitable materials generally include soils free from organic matter and deleterious substances containing no rocks or lumps over three (3) inches (75 mm) in greatest dimension, and with not more than 15% of the rocks or lumps larger than two and one-half inches (1-1/2) (60 mm) in their greatest dimension, free from organic matter and deleterious substances containing no rocks or lumps over six (6) inches (150 mm) in greatest dimension, and with not more than 15% of the rocks or lumps larger than two and one-half inches (2-1/2) (60 mm) in their greatest dimension. Soils with the ASTM classification symbols “SP”, “SW”, “SP-SM” and “SW-SM” may meet these criteria. Contractor shall refer to the project Geotechnical Report for a more detailed and full description of suitable soil materials.

F. Do not permit rocks having a dimension greater than one (1) inch (25 mm) or other materials that that significantly affect scarifying, compacting and finishing the subgrade in the upper eight (8) inches (200 mm) of fill or embankment.

G. For those portions of embankments where bore holes for piling are proposed or where pile driving is proposed, use materials that do not contain stone or broken concrete retained on a three (3) inch (75 mm) ring and that are free from quantities of gravel, stone or broken concrete passing a three (3) inch (75 mm) ring or other materials that significantly affect boring holes or pile diving.

2.2 TOPSOIL

A. Topsoil, as approved by Geotechnical Engineer: Dark brown to black sandy material, if available, stripped from the site. If stripped topsoil is not suitable or sufficient material is not available on site, provide topsoil from an approved off-site source.

B. Use topsoil consisting of material removed from the top three (3) to six (6) inches (76 to 150 mm) of soils as approved by the Geotechnical Engineer.

C. Use topsoil containing no stones, roots or large clods of soil.

D. Stockpile topsoil separate from other excavated material.

2.3 SAND CUSHION

A. Sand cushion beneath exterior concrete work: Granular soil containing less than 5% passing 200 sieve and no more than 40% passing the 40 sieve. Contractor shall refer to the project Geotechnical Report for a full gradation and description of approved material.

2.4 COARSE GRANULAR FILL/SELECT GRANULAR FILL

A. Coarse Granular Fill: The predominant size is material that will pass a No. 10 sieve and be retained on a No. 200 sieve. The material will not form a ribbon. H.R.B. classification, A-1b or A-3, Group Index 0. Material shall be verified and approved by the Independent Testing Agency (014000). Contractor shall refer to the project Geotechnical Report for a full gradation and description of approved material.

2.5 WEED KILLER

A. Provide a dry, free flowing, dust free chemical compound, soluble in water, capable of inhibiting growth of vegetation and approved for use on this Work by governmental agencies having jurisdiction.

2.6 SILT FENCE

A. Provide silt fence structure specifically designed to control sediment run-off. See Section 312500 Erosion and Sediment Control for additional information.

2.7 EQUIPMENT

A. Use equipment adequate in size, capacity and numbers to accomplish the Work in a timely manner without undue waste or damage of materials.

2.8 ACQUISITION OF MATERIALS

A. Insufficient Materials: Areas may be available within the site for use as on-site borrow and exchange of soils. The Contractor shall submit an application for on-site borrow to the Engineer. The Engineer will review the application and make recommendations to the Owner regarding the suitability of the borrow area within the context of the Work. On-site borrow requires specific permission of the Owner. Borrow areas shall not undermine or disturb adjacent improvements, structures, pavements and landscaping. In the event that suitable borrow material is not available on-site, the Contractor shall provide borrow material approved by the Engineer and Geotechnical Engineer from off-site as necessary to complete the Work. The cost of borrow materials shall be considered incidental to the Contract.

2.9 DISPOSITION OF MATERIALS

A. Surplus Earth: Unless designated elsewhere for use or disposal on Owner's property, surplus earth becomes the property of the Contractor and shall be removed from the Owner's site. The cost of disposal off-site shall be considered incidental to the Contract. Contractor to comply with all jurisdictional governmental requirements.

2.10 MATERIAL BALANCE

A. The Contractor is responsible for determining the quantities of material necessary for completing the Work under this Section, including the cost of importing approved fill or exporting excess materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum. Verify that survey benchmark and intended elevations for the Work are as indicated on the Drawings.

B. Identify known underground, above ground, and aerial utilities. Stake and flag locations. Protect above and below grade utilities which are to remain.

C. Clearing and Grubbing: Clear and grub areas to be graded prior to commencement of the grading operations.

D. Where so indicated by the Owner, protect and leave standing designated desirable trees.

E. Complete any demolition and/or removal Work as may be required prior to grading operations.

F. Dispose of all clearing, grubbing and demolition debris and other deleterious material off the project site.

G. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

H. Topsoil:

1. Transport and deposit topsoil in storage piles convenient to areas that are to receive topsoil or in other locations as indicated on the Drawings or approved by the Geotechnical Engineer.

2. Deposit topsoil in areas that are already graded and will not be disturbed by on-going construction.

3. Dispose of unsuitable or unusable stripped material off-site or as otherwise directed by the Geotechnical Engineer.

I. Sampling and Preliminary Testing:

1. Prior to beginning the grading operations, the Contractor shall submit to the Engineer his proposed sequence of excavation operations.

2. Based upon the sequence of excavation, samples of the fill materials will be obtained as excavation proceeds and tested for grain size permeability and moisture density relationship using the Standard Proctor Method (ASTM D698, Method A).

3. Allow sufficient time for completion of laboratory tests before any fill operations begin, using the soils being tested.

3.3 SPECIAL PRECAUTIONS

A. Dewatering:

1. Prevent surface water and subsurface (ground) water from flowing into excavations and from flooding the site and surrounding area.

2. Do not allow water to accumulate in excavations. Remove water to prevent soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

3. Convey water removed from excavations and rain water to collecting or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.

4. The cost of dewatering shall be considered incidental to the Contract.

B. Stability of Excavations:

1. Sidewalls of all excavations shall comply with the most current O.S.H.A. regulations and applicable local building codes and ordinances. Shore and brace where adequate sloping is not feasible because of space restrictions or stability of material being excavated.

2. Maintain slopes of excavations in safe condition until completion of backfilling.

3. Barricade open excavations as part of the Work.

4. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by performance of the work under this Section.

C. Cold Weather Protection:

1. Protect excavation bottoms and bearing surfaces against freezing when atmospheric temperature is less than 35 degrees F (2 degrees C).

2. Completely remove frost and snow if present before any fill is placed.

3.4 GRADING ELEVATIONS AND LINES

A. Construct areas outside of building or structure lines true to grades shown minus applicable hold downs.

1. Where no grade is indicated, shape finish surface to drain away from buildings or structures, as approved by the Geotechnical Engineer.

B. Degree of finish shall be that ordinarily obtainable from bladegrader, supplemented with hand raking and finishing.

C. Finish subgrade surfaces to within 0.10 feet (30 mm) above or below the established grade or approved cross section.

3.5 GENERAL PROCEDURES

A. Existing Utilities:

1. Unless shown to be removed, locate and protect all active utility lines prior to excavating.
2. If existing utilities are found to interfere with the permanent facilities being constructed under this Section, immediately notify the Engineer and secure his written instructions.
3. Do not proceed with permanent relocation of utilities until written instructions are received from the Engineer.

B. Protection of Persons and Property:

1. Barricade open holes and depressions occurring as part of this Work, and post warning lights on property adjacent to or with public access.
2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
3. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, washout and other hazards created by operations under this Section.

C. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

D. Maintain access to adjacent areas at all times.

E. Erosion Control:

1. See Section 312500 Erosion and Sediment Control for additional information.

F. Excavate and backfill in a manner and sequence that will provide proper drainage at all times.

3.6 EXCAVATING (CUTS)

A. Perform excavating of every type of material encountered within the limits of the Work to the lines, grades and elevations indicated and specified herein.

B. Excavate and remove all soil with organic content within areas of the proposed building (including future additions) and all paving areas. Remove any soft soils which are unsuitable for loads as directed by the Geotechnical Engineer. No proposed concrete slabs or similar loads shall bear on soil with questionable bearing capacity.

C. Oversize excavations at least three (3) feet (900 mm) plus one (1) foot (300 mm) horizontally from face of building for each one (1) foot (300 mm) or excavation below finish floor grade.

D. Salvage, separate and stockpile excavated granular base materials and pavement materials when excavating through existing pavements areas. Stockpile areas shall be in areas designated by the contractor and approved by the Owner prior to placement of stockpiled material.

E. Provide temporary drainage where construction interferes with existing drainage. Excavate and backfill in a manner and sequence that will provide proper drainage at all times.

F. Protect and brace existing footings before performing soil corrections within the zone of influence below the existing footings. The zone of influence is defined as the area below a line commencing three (3) feet (900 mm) outside the footing at footing elevation and extending down at a slope of one (1) foot (300 mm) vertical for each foot horizontal. The Contractor shall stop and consult the Geotechnical Engineer and Structural Engineer if it appears that soil correction is required within the zone of influence of the existing footings.

G. Suitable Excavated Materials:

1. Use all suitable materials removed from the excavation, as far as practicable, in the formation of the embankments, subgrades, shoulders, building sites and other places as directed.

2. Unless otherwise indicated on the Drawings, or approved by the Engineer, surplus suitable material shall be removed from the site and disposed of by the Contractor.

H. Unsuitable Excavated Material: Remove from the site and dispose of all unsuitable material, unless otherwise approved by the Engineer.

I. Unsuitable bearing soils encountered during excavation shall be excavated to a distance below grade as directed by the Geotechnical Engineer and replaced with satisfactory materials as specified.

J. Excavated materials suitable for fill and backfill shall be stockpiled in an area so as not to cause obstruction to Owner. Contractor shall utilize appropriate methods of erosion control (312500) on all stockpiled soils.

K. Dispose of unsuitable excavated material and surplus material away from the site at disposal areas arranged and paid for by the Contractor unless Owner approves otherwise.

L. Rock Excavation:

1. Immediately notify the Engineer upon encountering rock or similar material which cannot be removed or excavated by conventional earth moving or ripping equipment.

2. Do not use explosives without written permission from the Engineer.

3. When explosives are permitted, use only experienced powder men or persons who are licensed or otherwise authorized to use explosives. Store, handle and use explosives in strict accordance with all regulatory bodies and the “Manual of Accident Prevention in Construction” of the Associated General Contractors of America, Inc.

4. The Contractor shall be solely responsible for any damage resulting from the use of explosives.

5. The Contractor is responsible for securing all permits required in performing this Work.

M. Unauthorized Excavation:

1. Excavation of material to depths below the grades indicated on the Drawings, unless so directed in writing by the Engineer, will be deemed unauthorized excavation.

2. Unauthorized over-excavation shall be backfilled and compacted without any additional expense to the Owner.

N. Authorized Over-Excavation:

1. In the event that it is necessary to remove unsuitable material to a depth greater than that shown on the Drawings, or otherwise specified, the Contractor shall pause and obtain authorization from the Owner to continue with the over-excavation work. Upon authorization, the Contractor shall remove, replace and compact such material with suitable materials as directed by the Geotechnical Engineer. The Contractor shall provide pricing for work prior to resuming construction.

3.7 FILLING AND BACKFILLING

A. Use fills formed of suitable material placed in layers (lifts) as described in the Geotechnical Report, in depth measured loose and rolled and/or vibrated with suitable equipment until compacted.

B. Do not place rock that will not pass through a three (3) inch (75 mm) diameter ring within the top 12 inches (300 mm) of the surface of the completed fill or rock that will not pass through a three (3) inch (75 mm) diameter ring within the top six (6) inches (150 mm) of the completed fill.

C. Do not use broken concrete or asphalt pavement in fills.

D. Selection of Borrow Material:

1. Material in excess of that available on the site shall be suitable material furnished by the Contractor from private sources selected by the Contractor. The material shall be approved by the Geotechnical Engineer before use. All expenses involved in securing, developing, transporting and placing the material shall be borne by the Contractor.

E. Placing and Compacting:

1. Place backfill and fill materials in layers not more than eight (8) inches (203 mm) in loose depth.

2. Before compacting, moisten or aerate each layer as necessary to provide the optimum moisture content.

3. Compact each layer to required percentage of maximum density for the area.

4. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

5. Place backfill and fill materials evenly adjacent to structures, to required elevations.

6. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around the structures to approximately the same elevation in each lift.

F. Moisture Control:

1. Do not use soil material that is either too dry or too wet to achieve proper compaction.
2. Where subgrade or layer of soil material is too dry to achieve proper compaction, uniformly apply water to surface of soil material such that free water does not appear on the surface during or subsequent to compacting operations.
3. Remove and replace, or scarify and air dry, soil material that is too wet to permit compacting to the specified density.
4. Soil material that has been removed because it is too wet to permit compacting may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value as determined by moisture-density relation tests approved by the Geotechnical Engineer.

G. Compaction Requirements:

1. Compact soils to not less than the following percentages of maximum dry density as determined in accordance with ASTM D698, Method A (Standard Proctor). Contractor to refer to Geotechnical Report.
2. Fill beneath paved areas to receive vehicular traffic
   a. Top three (3) feet of subgrade 100%.
   b. All other fill material 98%.
3. Embankments:
   a. Top 12 inches (300 mm) of subgrade 98%.
   b. All other fill material 95%.
4. Fill beneath walkways:
   a. Top 12 inches (300 mm) of subgrade 98%.
   b. All other fill material 95%.
5. Lawn and unpaved open areas:
   a. All fill material 95%.

H. Compacted topsoil thickness at the following areas:

1. Seeded Grass: Six (6) inches (150 mm).

3.8 ROUGH GRADING

A. The grades shown on the drawings are proposed finished grades. The Contractor shall grade to prescribed sub-grade elevations except landscaped areas which shall be graded to finished grade with approved topsoil.

B. The Contractor shall be solely responsible for determining quantities of fill and waste materials to be handled, and for amount of grading to be done in order to completely perform all work indicated on the Drawings. Cost of importing fill and/or exporting excess materials from the site is included into the contract price.

C. Provide surfaces free of debris and building materials. Complete rough grading by blading to reasonably smooth contours with neat, uniform transitions and slopes. Remove stones over two (2) inches (50 mm) diameter, branches and other vegetation. Ease new grades into surrounding existing grades without awkward or abrupt transitions.

D. Finish all surfaces to such contour that they will not impound surface water.

1. Rough grade tolerances are as follows:

a. Where the subgrade is prepared for unpaved areas outside buildings: Not more than 0.20 feet (60 mm) above or below finish grade elevations shown on the drawings.

b. Where the subgrade is prepared for placement of an aggregate wearing course or is being finished for acceptance of the grading construction the elevation of the finished surface shall not vary by more than 0.10 feet (30 mm) from the prescribed elevation at any point where the measurement is made.

E. Protect newly graded areas from traffic and erosion. Repair and re-establish grades in settled, eroded and rutted areas to specified tolerances.

F. Hold downs for rough grading are as follows:

1. Landscape Areas: Refer to Landscape Drawings.

2. Exterior Sidewalks, Bituminous Walkways and Pavements: Indicated on the Drawings.

3.9 FINE GRADING

A. General:

1. Shape and tolerance building pads and street, road, alley and driveway crowns in accordance with typical sections.

2. Use mold board reserved for fine grading to achieve tolerances.

3. Fine Grading Tolerances:

a. All surfaces shall be finished to such contour that they will not impound surface water.

b. Where the subgrade is prepared for the placement of an aggregate base course, the elevation of the finished surface at the time the next layer is placed shall not vary by more than 0.05 foot (15 mm) above or 0.1 (30 mm) foot below the prescribed elevation at any point where the measurement is made.

c. Where the subgrade is prepared for placement of a surface course the elevation of the finished surface at the time the next layer is placed shall not vary by more than 0.05 foot (15 mm) from the prescribed elevation at any point where the measurement is made.

3.10 FINISH GRADING

A. General:

1. Uniformly grade the areas within limits of grading under this Section, including adjacent transition areas.

2. All surfaces shall be finished to such contour that they will not impound surface water.

3. Smooth the finish graded surfaces within specified tolerance.

4. Finish grade tolerances are as follows:

a. Unpaved Areas Outside Building: Not more than 0.1 foot (30 mm) above or below the finish grade elevations indicated on the Drawings.

5. Grade with uniform levels or slopes between points where elevations are shown on the Drawings, or between such points and existing grades.

6. Where a change of slope is indicated on the Drawings, construct a rolled transition section having a minimum radius of approximately eight (8) feet zero (0) inches (2.4 m), unless adjacent construction will not permit such a transition, or if such a transition defeats positive control of drainage.

B. Grading Adjacent to Structures: Grade areas adjacent to buildings to achieve drainage away from the structures and to prevent ponding.

C. Ditches, Gutters and Swales:

1. Cut accurately to the cross sections, grades and elevations shown.

2. Maintain excavations free from detrimental quantities of leaves, sticks, trash and other debris until completion of the Work.

3. Dispose of excavated materials as specified herein; do not in any case deposit materials within three (3) feet zero (0) inches (900 mm) of the edge of a ditch.

3.11 SUBGRADE INTERMEDIATE CONSOLIDATION AND TRIMMING

A. In addition to maintaining drainage during construction, consolidate and trim the subgrade that was disturbed, operated over or constructed to aid drainage and to protect against erosion at the end of each work day or sooner in the event of imminent rain. Consolidate and trim until all float material is pressed against the subgrade and produces a tight well-drained surface.

3.12 FIELD QUALITY CONTROL

A. Field-testing and inspection shall be performed by qualified parties as specified herein and in accordance with the provisions of Section 014000.

B. Conventional testing and inspection services herein describe those items not specifically required by the Local Governmental Unit and State DOT are considered essential to the proper performance of the building systems.

C. Secure the Geotechnical Engineer’s inspection and written approval of subgrades and fill layers before subsequent construction is permitted thereon.

D. Cooperate fully with Owner's soils testing laboratory inspector during all phases of site grading; provide advance notice to soils testing laboratory inspector before stripping, excavating, cutting, filling, and compacting work is started; inform soils testing laboratory inspector of grading schedule so inspector and Contractor may work together to provide efficient and satisfactory results.

E. Stormwater Areas (filtration areas and graded areas to north and east of parking lot) grading verification: Upon completion of grading operations and prior to establishing turf, the Contractor shall verify that the completed Stormwater Areas have been constructed according to the Contract Documents. A detailed survey with spot elevations on a 15 foot grid, grade breaks, and contours, as prepared by an Independent Licensed Land Surveyor, shall be submitted to the Engineer for approval. If the Stormwater Areas field do not meet the requirements of the Contract Documents, the Contractor shall re-grade and re-survey the Stormwater Areas as required to meet the requirements of the Contract Documents with no additional compensation beyond the original bid amount.

F. Classification of materials used and encountered during construction will be performed in accordance with ASTM D2488 and D2487.

G. Compaction testing will be performed in accordance with ASTM D698.

H. Document presence of ground water within excavations. Verify cut and fill slopes as specified in the Contract Documents.

I. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

J. Frequency of Field Density Tests:

1. Lab Analysis of Subgrade Soils (Proctors): One per representative embankment soil class.

2. In areas to receive paving in each compacted fill layer at least one (1) field density test for every 250 cubic yards but not less than three (3) tests.

3. Other tests as deemed necessary by the Geotechnical Engineer.

K. If, in the Geotechnical Engineer's opinion, based on reports of the testing laboratory, subgrade or fills that have been placed are below specified density, provide additional compacting and testing until specified requirements are met.

1. Additional testing will be provided by the Owner's selected testing laboratory and all costs for the additional testing will be borne by the Contractor.

L. Proofrolling:

1. Proofroll subgrade for areas to receive paving, structures on fill or impervious lining material.

a. Make not less than three (3) passes of a fully load tandem axle truck over the full area.

b. Remove unstable, soft or otherwise unsuitable materials revealed by the proofrolling and replace with satisfactory materials, compacted as specified herein.

4.1 PLACING TOPSOIL

A. Upon completion of site grading and other related site work, topsoil shall be uniformly spread over the graded or improved areas. Topsoil shall be evenly distributed to conform to final grade elevations shown on the Drawings.

B. Place, level and lightly compact topsoil to a depth of not less than six (6) inches (150 mm). Coordinate with 3.7.H and Landscape Plans.

C. Maintain topsoil free of roots, rocks, debris, clods of soil and any other objectionable material, which might hinder subsequent grassing or mowing operations.

D. Any surplus materials shall be disposed of in approved areas on the site.

4.2 MAINTENANCE

A. Protection of Newly Graded Areas:

1. Protect newly graded areas from traffic and erosion, and keep free from trash and weeds.

2. Repair and re-establish grades in settled, eroded and rutted areas to the specified tolerances.

B. Where completed compacted areas are disturbed by subsequent construction operations, or adverse weather, scarify the surface, reshape, and compact to the required density prior to further construction.

END OF SECTION 310000

SECTION 31 10 00

SITE CLEARING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Conditions of the Contract (General, Supplementary and Other Conditions), the General Requirements (Sections of Division One) and the Drawings apply to the Work of this Section.

B. Remove trees, underbrush, undesirable growths, stumps, roots, etc. from the area to the limits indicated on the drawings, specified herein, and as required to meet the Contract Documents.

C. Site Clearing Operations:

1. Erosion control measures.
2. Remove surface debris.
3. Removal of turf.
4. Clearing and grubbing.
5. Selective tree removal, shrubs and other plants.
6. Stripping topsoil.
7. Stripping and stockpiling of soil.
8. Disconnecting, capping or sealing, and abandoning site utilities in place.
9. Disconnecting, capping or sealing, and removing site utilities.

1.2 RELATED SECTIONS

A. Section 014000 - Quality Requirements.

B. Section 015000 - Temporary Facilities.

C. Section 024113 - Selective Site Demolition.

D. Section 310000 – Earthwork.

E. Section 312500 - Erosion and Sediment Control.

1.3 RELATED DOCUMENTS

A. State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest Edition and addenda.

1.4 QUALITY ASSURANCE

A. Codes and Standards: Perform excavation work and disposal of debris in accordance with applicable requirements of governing authorities having jurisdiction.

B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the

specified requirements and the methods needed for proper performance of the work of this Section.

C. Use equipment adequate in size, capacity and numbers to accomplish the work in a timely manner.

1.5 SITE CONDITIONS

A. Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied facilities. Do not close or obstruct streets, walks, or other occupied facilities without written permission from authorities having jurisdiction. Contractor shall submit a Traffic Control Plan to the Local Governmental Unit, State DOT, and the Engineer for approval prior to construction.

B. Protection of Persons: Owner activities will continue in and about the site during construction. Install barricade fencing (snow fence), as necessary, to provide a safe environment between construction work and pedestrian circulation.

C. Existing Utilities: Locate and mark all existing utilities, which are on site where work is to be performed.

D. Bench Marks and Monuments: Maintain benchmarks and monuments existing on site.

E. Protection of Existing Property to Remain: Protect existing plants, equipment and structures, which are in area where work will be performed and which are to remain. Repair or replace existing property, which is to remain that is damaged by the work, to Owner's satisfaction and at no cost to the Owner.

F. Contractor is required to contact the State’s Private Utility Locate Call prior to any excavation.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide all materials, equipment and appurtenances required for completion of clearing work, including that required for protection of vegetation and other improvements that are to remain.

PART 3 - EXECUTION

3.1 PREPARATION

A. Conduct site preparation operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied facilities without permission from authorities having jurisdiction.

B. Identify required lines, levels, contours, and datum. Verify that survey benchmark and intended elevations for the Work are as indicated on the Drawings.

C. Identify known and found underground, above ground, and aerial utilities. Stake and flag locations. Protect above and below grade utilities, which are to remain.

D. Provide erosion-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways. Install erosion control elements before commencing any land disturbing activities.

E. Locate, flag, and clearly identify trees and vegetation to remain or to be relocated.

3.2 SITE CLEARING

A. General: Remove trees, shrubs, grass and other vegetation, improvements, or obstructions as required to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated on the Drawings. “Removal” includes digging out and off-site disposing of stumps and roots.

B. Topsoil: Strip topsoil to whatever depths encountered in a manner to prevent undermingling with underlying subsoil or other objectionable material. Refer to Geotechnical Report.

C. Remove heavy growths of grass from areas before stripping. Where existing trees are indicated to remain, leaving existing topsoil in place within drip lines to prevent damage to root system.

D. Stockpile topsoil in storage areas indicated or directed. Construct storage piles to provide free drainage of surface water. Cover storage piles, if required, to prevent wind erosion (312500).

E. Utilities:

1. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing when requested by Contractor. Contractor shall verify that utilities have been disconnected and capped before proceeding with site clearing.

2. Contractor to locate, identify, disconnect, and seal or cap off utilities indicated to be removed. Owner will arrange to shut off indicated utilities when requested by contractor and contractor to arrange to shut off indicated utilities with utility companies.

3. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated. Notify Owner not less than two (2) days in advance of proposed utility interruptions and do not proceed with utility interruptions without Owner's written permission.

3.3 CLEARING AND GRUBBING

A. Clearing and grubbing: The entire area within the limit lines described above shall be cleared and grubbed. Remove all vegetation, trees, brush, stumps, etc. from the area. All debris from this operation shall be disposed of off the Owner’s property.

B. Selective clearing shall be done in areas designated by the Engineer. Selective clearing shall consist of removing vegetation, brush, stumps, etc. from the area.

Selected trees shall be left standing and care shall be taken not to damage trees to be left. All debris from this operation shall be disposed of off the Owner's property. Grubbing will not be required in areas designated for selective clearing.

C. Cutting and removing trees, shrubs, bushes, windfalls, and other vegetation. Cut brush within six (6) inches (150 mm) of the ground surface. Remove, as directed, any low hanging, unsound, or unsightly branches on the trees and shrubs designated to remain.

D. Remove and dispose of stumps, roots and other remains. Remove stumps completely. Except in areas to be excavated, backfill depressions resulting from the grubbing operations with suitable material. Compacted to the specified requirements.

E. Remove timber, stumps, roots and other debris or by-products resulting from the clearing and grubbing operations. Remove from the site. If any wood is run through a chipping machine, the wood chips shall be recovered and disposed of off site.

F. Removal of Improvements: Remove existing above-grade and below-grade improvements as indicated on the Drawings or as necessary with Owner's permissions to facilitate new construction.

G. Abandonment or removal of certain underground pipe or conduits may be indicated on the Drawings, and is included under Work of related Division 33 sections. Removal of abandoned underground piping or conduit interfering with construction is included under this Section.

3.4 PROTECTION

A. Protect utilities that remain, from damage.

B. Protect trees, plant growth, and features designated to remain as final landscaping.

C. Protect benchmarks, existing structures, fences, sidewalks, paving, curbs and other items indicated on the Drawings to remain.

D. Protection of trees: It may become desirable to save certain trees in areas where cut or fill is 18 inches or less and in parking areas. Consequently, obtain approval from Owner prior to removal of significant trees from such areas. Protect existing trees to remain during construction by constructing barricades around such trees as directed.

3.5 DISPOSAL OF WASTE MATERIALS

A. Burning of debris – construction materials (i.e. manmade wood, erosion control products and others) - is not permitted on Owner's property.

B. Remove all waste, unsuitable and excess materials from the site daily, and dispose of legally off-site at approved locations.

C. Comply with all governing jurisdictional requirements.

END OF SECTION 311000

SECTION 31 23 33

TRENCH EXCAVATION AND BACKFILL FOR UTILITIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Conditions of the Contract (General, Supplementary and Other Conditions), the General Requirements (Sections of Division One) and the Drawings Apply to the Work of this Section.

B. Trench Excavation, Backfilling and Compaction as Indicated on the Drawings, Specified Herein; and as Needed for Installation of Underground Utilities Associated With the Work.

C. Special Pipe Foundations, Pipe Bedding and Trench Work; Done in Accordance With O.S.H.A. Regulations.

1.2 RELATED SECTIONS

A. Section 014000 - Quality Requirements.

B. Section 024113 - Selective Site Demolition.

C. Section 311000 - Site Clearing.

D. Section 312500 - Erosion and Sediment Control.

E. Section 334000 - Storm Drainage Utilities.

1.3 RELATED DOCUMENTS

A. State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest edition and addenda.

B. The Geotechnical Evaluation Report, Project B1500402.00, dated February 27th, 2015 was prepared by Braun Intertec Corporation.

C. Phase I Environmental Site Assessment, dated September 2009 prepared by Wenck Associates, Inc., Wenck File #2089-03.

1.4 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Samples: Submit 10 lb. (4.5 kg) Sample of granular foundation, bedding and encasement material of each type of fill to Independent Testing Laboratory, in air-tight containers.

C. Test Reports: Submit Independent Testing Laboratory reports which pertain to testing services performed at the site under provisions of Section 014000.

D. Certification of materials for pipe bedding is required.

1.5 QUALITY ASSURANCE

A. Codes and Standards: Perform excavation work and disposal of debris in accordance with applicable requirements of governing authorities having jurisdiction.

B. All excavations and trenches shall comply with the requirements of O.S.H.A. 29 CFR, Part 1926, Sub-Part P, “Excavations and Trenches”.

C. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

D. Use equipment adequate in size, capacity, and numbers to accomplish the Work in a timely manner.

E. Contractor shall conduct demolition operations and removal of debris in a manner to minimally interfere with traffic as part of the Owner’s operations, traffic of adjoining streets, driveways, and walkways. No blocking or closing of streets, driveway, or walkways shall occur without written approval and/or necessary permits. Contractor shall provide alternate routes when necessary to obstruct streets, driveways, or walkways. Any traffic control required as part of the project shall meet the requirements set forth in the MMUTCD. Contractor is responsible to prepare and submit to the Engineer a detailed traffic control plan prior to beginning construction operations.

F. Contractor is responsible for obtaining all required permits for the scope of work specified in the Contract Documents prior to construction.

G. Contractor shall provide copies of permits and approvals received to Owner and Architect.

F. Tests and analysis of fill materials will be performed in accordance with ANSI/ASTM D698 and approved by the Geotechnical Engineer.

H. The Owner shall secure and pay for the services of a testing laboratory to conduct the soil testing program. All soils testing shall comply with the Local Governmental Unit and State DOT Standards.

I. A qualified representative (Soils Engineer) of the testing laboratory shall be present at the site during the performance of the work required under this Section. Contractor shall notify the testing laboratory a minimum of two days in advance of required testing and shall coordinate all testing with Engineer. Earthwork operations which require testing and inspecting services shall not be performed unless soils testing laboratory inspector is present. These services include but are not limited to the following:

   a. Observe the trenching and placement of all pipe systems to ensure that the requirements of the Contract Documents are being met.

   b. Inspect fill/backfill operations within all areas to receive paving to ensure acceptability of backfill material being placed, method used to place backfill, thickness of layers being placed, and

compaction of material. Make density tests as backfilling occurs to ensure that material is being compacted in accordance with specified requirements.

c. In the event the inspections and tests indicate the work has not been performed in accordance with the Drawings and Specifications, the materials shall be removed and the work redone and retested, at no additional cost to the Owner.

1.6 SITE CONDITIONS

A. Existing Utilities:

1. Those now existing in the construction areas, watermain, storm drainage, sanitary sewers, street paving, gas mains and other utilities. Prior to Construction, contractors shall make their own subsurface investigations to satisfy themselves as to site and subsurface conditions, but such investigations may be performed only under time schedules and arrangements approved in advance by the Owner.

2. Approximate location of certain underground lines and structures are shown on the Plans for information only, and other underground lines or structures are not shown. Contractor is responsible to perform field locates for all existing public and private utilities prior to construction.

3. Locate these and other possible unknown utility lines using electronic pipe finder, or other approved means.

4. Locate, excavate and expose all existing underground lines in advance of trenching operations.

5. The Contractor will be held responsible for the workmanlike repair of any damage done to any existing utilities in the execution of his Work under this Section.

6. The Contractor shall familiarize himself with the existing conditions and be prepared to adequately care for and safeguard himself and the Owner from damage.

B. Protection of Persons: Owner activities will continue in and about the site during construction. Install barricade fencing (snow fence), as necessary, to provide a safe environment between construction work and pedestrian circulation.

C. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.

D. Bench Marks and Monuments: Maintain benchmarks and monuments existing on site.

E. Protection of Existing Property to Remain: Protect existing equipment and structures in areas where work will be performed and which are to remain. Repair or replace existing property, which is to remain that is damaged by the work, per Owner's approval and at no cost to the Owner.

1. Barricade open holes and depressions occurring as part of this Work, and post warning lights on property adjacent to or with public access.
2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
3. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, washout and other hazards created by operations under this Section.
4. Provide temporary fencing or other safeguards as required.

F. Protecting Trees, Shrubbery and Lawns:

1. Refer to Section 015000 - Temporary Facilities .
2. Trees, plants and shrubbery in developed areas and along the trench line: Do not disturb unless absolutely necessary, and subject to the approval of the Engineer.

   Any such trees, plants and shrubbery necessary to be removed shall be heeled in and replanted.
3. Where trenches cross private property through established lawns, cut, remove, stack and maintain sod in suitable condition until replacement is approved by the Engineer.

   Topsoil underlying lawn areas: Remove and keep separate from general excavated materials.

G. Protecting Existing Building:

1. PROTECT AND BRACE EXISTING FOOTINGS AS REQUIRED WHEN EXCAVATING ADJACENT TO EXISTING BUILDING. THE ZONE OF INFLUENCE IS DEFINED AS THE AREA BELOW A LINE COMMENCING THREE (3) FEET (900 MM) OUTSIDE THE FOOTING AT FOOTING ELEVATION AND EXTENDING DOWN AT A SLOPE OF ONE (1) FOOT (300 MM) VERTICAL FOR EACH FOOT HORIZONTAL. THE CONTRACTOR SHALL STOP AND CONSULT THE GEOTECHNICAL ENGINEER AND STRUCTURAL ENGINEER IF IT APPEARS THAT PIPE EXCAVATION IS REQUIRED WITHIN THE ZONE OF INFLUENCE OF THE EXISTING FOOTINGS.
2. WHEN COMPACTING TRENCH ADJACENT TO EXISTING BUILDING, CONTRACTOR SHALL COMPACT THE TRENCH IN A MANNER TO MEET THE REQUIREMENTS OF THE SPECIFICATIONS WITHOUT CAUSING DAMAGE TO THE EXISTING BUILDING OR ANY VIBRATION SENSITIVE EQUIPMENT INSIDE THE BUILDING. CONTRACTOR SHALL COORDINATE CLOSELY WITH OWNER FOR THIS WORK.

H. Clearing:

1. Perform all clearing necessary for trench excavation and backfill. Refer to Section 311000.

2. Clearing work consists of removing all trees, stumps, roots, brush and debris in the Owner's property, easement or right-of-way obtained for the Work.

3. All timber of merchantable size shall remain the property of the Owner and shall be trimmed and cut in such lengths as directed and stacked on-site where designated by the Owner.

4. All other material, including trimmings from above, shall be completely disposed of off-site in a satisfactory manner.

I. Removing and Re-Setting Fences:

1. Where existing fences must be removed to permit construction of utilities:

Remove such fences, and as the Work progresses, reset the fences in their original location and condition.

J. Restoration of Disturbed Areas:

1. Restore all areas disturbed by, during or as a result of construction activities to their existing or better condition.

2. Do not interpret this as requiring replacement of trees, and undergrowth in undeveloped sections of the Owner's property.

K. Minimizing Silting and Erosion During Construction:

1. During construction, protective measures shall be taken and maintained to minimize silting and erosion adjacent to the work being performed during construction.

2. Erosion control blankets are to be used on steep slopes and fill slopes to prevent washing of ditch.

L. Blasting:

1. No blasting will be allowed.

PART 2 - PRODUCTS

2.1 EXCAVATED MATERIALS

A. Perform all excavations of every description and of whatever substances encountered to depths indicated on the Drawings or specified.

B. Pile materials for backfilling in an orderly manner at safe distance from banks or trenches to avoid overloading and to prevent slides or cave-ins.

C. Salvage, separate and stockpile excavated granular base materials and pavement materials when excavating through existing pavements areas. Stockpile areas shall be in areas designated by the contractor and approved by the Owner prior to placement of stockpiled material.

D. Remove and deposit unsuitable or excess materials as directed by the Engineer.

2.2 GRANULAR MATERIALS

A. Granular materials furnished for foundation, bedding, encasement, backfill, or other purposes as may be specified shall consist of any natural or synthetic mineral aggregate such as sand, gravel, crushed rock, crushed stone, or slag, that shall be so graded as to meet the gradation requirements specified herein, and approved by the Geotechnical Engineer, for each particular use.

2.3 GRANULAR MATERIAL GRADATION CLASSIFICATIONS

A. Granular materials furnished for use in foundation at a minimum or follow the State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest edition and addenda, bedding, encasement, or backfill construction shall conform to the following requirements and be approved by the Geotechnical Engineer, or an approved equal:

Percent Passing Sieve Size		MATERIALS USE DESIGNATION Foundation	Bedding	Initial Backfill
1 inch	25 mm	100	100	100
3/4 inch	18 mm	85-100	90-100	
3/8 inch	9 mm	30-60	50-90	
# 4	5 mm	0-10	35-80	35-100
# 10	2 mm		20-65	20-100
# 40	400 µm		0-50	0-50
#200	71 µm		0-15	0-35

NOTE: Granular foundation, bedding and encasement material provided for plastic pipe and fittings shall meet the requirements of ASTM 2321, Class I, II or III materials or the requirements provided above if the Engineer authorizes such substitution.

2.4 GRANULAR MATERIAL DESIGNATIONS

A. Granular materials provided for Foundation, Bedding, Initial backfill, Final backfill and Encasement and or sleeving as required by the Plans, Specifications and Special Provisions, either as part of the pipe item work unit or as a separate Contract Item, shall be classified as to use in accordance with the following:

MATERIAL USE DESIGNATION (TERM)	ZONE DESIGNATION (DESCRIPTION)
Trench Foundation	Commonly a well graded aggregate and granular material placed below the bottom of pipe grade as replacement for unsuitable or unstable soils, to achieve better foundation support for the bedding.
Pipe Bedding	A uniformly graded granular material placed below the pipe prior to pipe installation, to facilitate proper shaping and to achieve uniform pipe support. This is the material scooped out to facilitate the pipe bells.

Initial Backfill	Commonly a well graded granular material placed around the pipe, on top of the pipe bedding to facilitate a uniform pipe support and perimeter pressures. This intial backfill is placed up to the springline, top of pipe or higher as indicated in the details.
Final Backfill	Is the soil material placed over the initial backfill up to the subgrade of the finished surfacing. Placed in lifts and compacted to minimize trench settlement and provide uniform support for finished surfacing improvements.
Finished surfacing	The finished surfacing varies significantly. It may be sod, seed, agricultural fields, gravel roads and parking, paved roads and parking (concrete or bituminous), a detention pond, etc. Reference the paving, grading plans and details including all related specification sections that are applicable to finished surfacing.

B. Reference the plans and details for the acceptable material types, gradations and whether the material is expected to be imported or reused from the site. In each case above, unless otherwise indicated, the lower limits of any particular zone shall be the top surface of the next lower course as constructed. The upper limits of each zone are established to define variable needs for material gradation and compaction or void content, taking into consideration the sequence of construction and other conditions. The material use and zone designations described above shall only serve to fulfill the objectives and shall not be construed to restrict the use of any particular material in other zones where the gradation requirements are met.

2.5 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 TRENCH EXCAVATION

A. Work shall be done by open trench excavation except jacked or augured pipe designated on the plans or as directed by the Engineer.

B. Topsoil shall be stripped from the trench and stockpiled to be used over all disturbed areas to be seeded or sodded. Stripping, stockpiling and re-spreading topsoil will be considered incidental to the project, and provided under provisions of Section 310000.

C. Aggregate base underlying existing pavements and existing pavements shall be stripped from the trench and stockpiled for future use. Stockpile areas shall be in areas designated by the Contractor and approved by the Owner.

D. Trench excavation shall be dug to the alignment and depth shown on the plans and only 100 feet (30.5 meters) in advance of the pipe laying. The trench shall be braced and drained so that workmen may work safely and efficiently therein.

E. Trench water shall be drained from the trench into natural drainage channels or storm sewers and shall be considered incidental to construction. Draining trench water into sanitary sewers will not be permitted.

F. Braced and sheeted trenches shall be put in place and maintained as may be required to support the side of the excavation and to prevent any movement which may in any way endanger personnel or injure or delay the work or endanger adjacent buildings or other structures. Where sheeting and bracing are used, the trench width shall be increased accordingly. Trench sheeting shall remain in place until pipe has been laid, tested for defects and repaired if necessary, and the earth around it compacted to a depth of one (1) foot (300 mm) over the top of the pipe. It shall be the Contractor's responsibility for compliance therein. All shoring and bracing shall meet all OSHA requirements and recommendations.

G. Excavated material shall be piled in a manner that will not endanger the work and that will avoid obstructing sidewalks, driveways and drainage. Gutters shall be kept clear or other satisfactory provisions made for street drainage. Contractor to utilize appropriate methods of Erosion and Sediment control (312500) over stockpiled material.

H. Width of trench may vary with, and depend upon, the depth of trench and the nature of the excavated material encountered; but in any case, shall be of ample width to permit the pipe to be laid and jointed properly and the backfill to be placed and compacted properly. The minimum width of un-sheeted trench for pipe less than 10 inches (250 mm) shall be 18 inches (450 mm) and for pipe 10 inches (250 mm) or larger, at least two (2) feet (600 mm) greater than the diameter of the pipe, except by consent of the Engineer. The maximum clear width of the trench at the top of the pipe shall not be more than two (2) feet (600 mm) greater than the outside diameter of the pipe.

I. Unless otherwise specified on the plans, all pipe will be placed in a flat bottom trench with tamped backfill. Backfill will be tamped with a hand held mechanical tamper. The sides of the trench shall slope back to provide a stable slope for the particular type of soil in the trench. If the contractor and/or geotechnical engineer deem the trench subgrade to be unsuitable, contact the Engineering office for direction.

J. If the trench is excavated to greater width than authorized, the Engineer may require the Contractor to provide a higher class of bedding, a higher strength

pipe or both, than that required by the Contract, without additional compensation therefore, as the Engineer may deem necessary to satisfy the design requirements.

K. Faulty grade of the trench below grade lines shall be corrected with approved material, thoroughly compacted without additional compensation to the Contractor.

L. Solid rock excavations shall include such rocks as are not decomposed, weathered or shattered and which will require blasting, barring, wedging or use of air tools for removal. Under this classification shall be included the removal of any concrete or masonry structure (except concrete pavement, curb pavement, curb and gutter and sidewalk) that cannot be removed by the standard trenching equipment. The size of boulders shall be defined as solid rock excavation where the size of boulders exceeds two (2) cubic yards (1.53 m^3).

M. Loose rock excavation shall include all stratified rock, sandstone, cemented gravel, shale and boulders not otherwise defined as solid rock, regardless of how removed.

N. Blasting will not be allowed.

O. When excavation is encountered that is unsuitable for backfill, it shall be removed as directed by the Geotechnical Engineer.

3.3 PREPARATION OF SOIL DURING PIPE LAYING

A. At the time of pipe placement, the bedding conditions shall be such as to provide uniform and continuous support for the pipe between bell holes. Bell holes shall be excavated as necessary to make the joint connections, but they shall be no larger than would be adequate. No pipe material shall be laid in water nor shall it be laid when the trench or bedding conditions are otherwise unsuitable or improper.

B. If trench bottom conditions are encountered which appear to require stabilization, the Engineer shall be informed. The trench conditions shall be examined by the Engineer to determine the nature of such instability, employing the services of a testing laboratory if necessary. If it is determined that the trench bottom cannot support the pipe, a further depth and/or width shall be excavated and refilled to the pipe foundation grade with granular foundation material and thoroughly compacted.

C. If the examination by the Engineer reveals that the afore described conditions are caused by the Contractor's manipulation of the soils in the presence of excessive moisture or lack of proper dewatering, the Contractor shall take such steps as are necessary to stabilize the trench bottom including the use of pipe support material and improved dewatering methods. In such case, the cost of measures necessary shall be borne by the Contractor.

D. The soils report and subsequent construction plans and details should provide direction as to extent of on site soil materials that are acceptable for reuse and which portions of the backfill are expected to be imported. Reference the soils boring report for recommendations and the thickness of lifts and compaction

effort required. When the bottom of the trench consists of material suitable to properly support the pipe the following methods of bedding shall apply:

1. Granular bedding material will be placed below the pipe, prior to the pipe installation, to facilitate proper shaping and achieve uniform pipe support, using hand compaction methods.
2. The initial backfill material at pipe zone shall be free from rock, boulders or other unsuitable substances and shall be deposited into the trench simultaneously on both sides of pipe for the full width of the trench in six (6) inch lifts thoroughly compacted to a minimum elevation of one (1) foot above the top of the pipe. Compaction shall be accomplished by hand held mechanical tamping.
3. The granular backfill material shall be placed to the top of the trench of street subgrade elevation in level, successive layers, having a thickness of not greater than eight (8) inches (200 mm). Each successive layer shall be thoroughly compacted as specified prior to the placement or additional layers. If the specified compaction is not being attained utilizing the equipment and materials available, the thickness of the layers shall be reduced. The addition of water to the backfill materials should be limited to achieving satisfactory moisture content for compaction control, if necessary. Compaction of the backfill should be attained using non-vibratory, or mechanical rammer-type compactors. The type of compactor is dependent on the type of backfill material used. Precautionary measures should be taken to assure that the compaction equipment will not damage the underlying pipe.
4. Backfilling shall not take place at any time unless approved compaction equipment is available at the site.
5. USE OF ANY VIBRATORY COMPACTION SYSTEM SHALL BE APPROVED BY OWNER PRIOR TO CONSTRUCTION.

E. Ledge rock, boulders and large stones shall be removed to provide a clearance of at least six (6) inches (150 mm) below outside barrel of the pipe, or fittings, and to clear width of six (6) inches (150 mm) on each side of the pipe and appurtenances for pipe 16 inches (400 mm) or less in diameter; for pipes larger than 16 inches (400 mm), a clearance of nine (9) inches (230 mm) below and clear width of nine (9) inches (230 mm) on each side of inside diameter of pipe shall be provided. Adequate clearance for properly jointing pipe laid in rock trenches shall be provided at bell holes.

F. Excavations below subgrade in rock or in boulders shall be refilled to subgrade with material approved by the Engineer or his representative and thoroughly compacted.

G. Where trench excavation is encountered which is unsuitable for backfill, such material shall be replaced with Engineer approved granular backfill to be supplied by the Contractor.

H. Where pipes are of sufficient size to create an excess of backfill material, the excess shall be hauled offsite. Hauling and grading of the excess backfill will be considered incidental to the project.

I. Any deficiency in the quantity of material for backfilling the trenches or for filling depressions caused by settlement shall be supplied by the Contractor with no extra compensation allowed. Any settlement, which occurs within one year after final acceptance, shall be refilled and the subject area completely restored to the satisfaction of the Owner by the Contractor with labor and material supplied at the Contractor's expense. Obtain Engineer's approval of all material prior to use.

J. Backfill in trenches in areas to be paved shall be placed to an elevation that will permit the placement of base material and surfacing material.

K. Hand trim excavation and leave free of loose matter. Hand trim for bell and spigot pipe joints.

L. Remove lumped subsoil, boulders, rocks and unsatisfactory foundation soils.

M. Excavation shall not interfere with normal 45 degree bearing splay of foundations.

N. Correct unauthorized excavation at no cost to Owner.

O. Stockpile excavated material in area designated on site and remove excess subsoil not being reused, from site.

P. Backfilling:

1. Support pipe and conduit during placement and compaction or bedding fill.

2. Backfill trenches to contours and elevations. Backfill systematically, as early as possible, to allow maximum time for natural settlement. Do not backfill over porous, wet, or spongy subgrade surfaces.

3. Place and compact fill materials and continuous layers not exceeding loose depth specified in the Geotechnical Report.

4. Employ placement and compaction methods so as not to disturb or damage foundation dampproofing, utility piping and or conduit.

5. Maintain optimum moisture content of backfill materials to attain required compaction density.

3.4 FIELD QUALITY CONTROL

A. Field testing and inspection: Performed by qualified parties as specified herein and in accordance with the provisions of Section 014000.

B. Conventional testing and inspection services herein describe those items not specifically required by the Local Governmental Unit and State DOT but are considered essential to the proper performance of the building systems.

C. Contractor is responsible to restore disturbed areas to existing or better conditions. Contractor shall ensure positive drainage for all areas disturbed as part of the scope of work in the Contract Documents.

D. Classification of materials used and encountered during construction shall be in accordance with ASTM D2488 and ASTM D2487.

E. Compaction testing: In accordance with ASTM D698. The density of the backfill after compaction shall be a minimum of 98 percent dry density unless otherwise indicated.

F. Document presence of ground water within excavations. Verify cut and fill slopes as specified in the Contract Documents.

G. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

H. Frequency of Tests:

1. Compaction tests of subgrade: Make at maximum horizontal intervals of 100 feet in each direction, or as directed by Geotechnical Engineer.

2. Compaction tests of in place backfill materials: One (1) per 100 feet in two (2) foot (600 mm) increments plus two (2) foot (600 mm) vertical intervals at each manhole. At least one (1) test per pipe, or as directed by Geotechnical Engineer.

I. Proofroll compacted fill surfaces within trenches.

END OF SECTION 312333

SECTION 31 25 00

EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Conditions of the Contract (General, Supplementary and Other Conditions), the General Requirements (Sections of Division One) and the Drawings Apply to the Work of this Section.

B. Provide Protection of the Environment During the Construction of This Project to Reduce Soil Erosion and Siltation to the Lowest Reasonably Achievable Level.

C. Erosion and Sediment Control; as Indicated on the Drawings, Specified Herein; Including, But Not Limited to, Construction of Temporary Erosion Checks and Controls, Silt Fence, Temporary Rock Construction Entrance, Filter Logs, Stockpile Protection, Street Sweeping, Storm sewer inlet filters, temporary seeding, erosion control blanket, and Slope and Water Course Protection.

1.2 RELATED SECTIONS

A. Section 024113 – Selective Site Demolition

B. Section 310000 - Earthwork.

C. Section 311000 - Site Clearing.

D. Section 3123330 - Trench Excavation and Backfill for Utilities.

E. Section 329200 - Turf and Grasses.

1.3 RELATED DOCUMENTS

A. State DOT Standard Specifications for Highway Construction, latest Edition including Addenda.

1.4 GENERAL

A. Exercise every reasonable precaution, throughout the life of the project, to prevent the eroding of soil and the silting of rivers, streams, lakes, reservoirs, other water impoundments, ground or roadway surfaces, or other property. Erosion control practices to be used for this project are indicated on the Drawings.

B. Contractor shall be responsible for all permits required by regulatory agencies related to erosion and sediment control.

1.5 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Product Data: Submit manufacturer’s product data for silt fence materials; including fabrics and posts.

C. Shop Drawings: Indicate complete silt fence and erosion control layout, dimensions, and termination details.

D. Contractor shall indicate proposed construction methods and sequence of construction, along with timeline milestones related to with for this section. Contractor shall coordinate with schedules of work of related sections.

E. Contractor shall furnish copies of permits and/or approvals from all regulatory agencies prior to construction.

F. Contractor shall maintain a log detailing inspections of erosion and sediment control items.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS - SILT FENCES

A. Subject to compliance with requirements of State DOT Standard Specifications for Highway Construction, latest Edition including Addenda, provide products from one of the following manufacturers:

1. Mirafi, Inc. - “EnviroFence”.
2. Terra Tex SC - “EconoFence”.
3. Webtec, Inc. - “Z-Fence”.

B. Substitutions: Under provisions of Section 016200.

C. Silt Fence Standards (minimum):

1. Grab Tensile Strength - 120 lb.
2. Trapezoid Tear Strength - 60 lb.
3. Mullen Burst Strength - 275 lb.
4. Water Permeability Coefficient (K) -20gal/min/ft^2
5. U.V. Stability (500 hrs.) - 70%
6. Grab Tensile Elongation - 10%
7. Fabric Height – three (3) feet zero (0) inches

2.2 MATERIALS

A. Provide silt fences as specified, and located where indicated on the Drawings. Anchor silt fences in accordance with manufacturer’s instructions.

B. Filter cloth for silt fences: Pervious sheet of synthetic polymer filaments woven from continuous fibers and as the type indicated on the Drawings.

C. Material shall meet requirements of MnDOT Specification section 3886, machine sliced.

2.3 EROSION CONTROL BLANKETS

A. Blankets are machine produced mats of curled wood excelsior of 80% six (6) inch or longer fiber lengths unless otherwise noted in the plans. Consistent thickness with the fiber evenly distributed over the entire area of the blanket. The blanket shall conform to MnDOT Specification Section 3885, Category 2, with natural netting and stitching. The blanket is smolder-resistant without the use of chemical additives. Provide “Curlex” Blankets as manufactured by American Excelsior Company or approved equal by the Engineer. Erosion control blankets and drainage geotextile shall conform to State’s specifications.

1. Provide erosion blankets at slopes and berms with slopes of 4:1 and greater, ditches, and other “hard to hold” problem areas.

PART 3 - EXECUTION

3.1 GENERAL

A. Contractor shall inspect all areas in work limits prior to construction to verify all underground work is complete and all utilities have been field located.

B. Construct and maintain all erosion control measures until the Substantial Completion of the project, or as directed by the Engineer.

3.2 EROSION CONTROL

A. Install sediment filters at catch basins within the construction zone. Sediment filters shall remain in place until turf and pavement surfaces are established. Contact Engineer prior to removal.

B. Repair or replace any erosion control devices, which have been disrupted during operations as required by local regulation. This work and material shall be considered incidental to the contract and no additional compensation shall be made therefore.

C. Install siltation fence and leave in place until turf has been established. Contact Engineer prior to removal.

D. Schedule and conduct operations so as to minimize erosion of soils and to prevent silting and muddying of streams, irrigation systems and impoundments (ponds, wetlands, etc.). Construction of drainage facilities, turf establishment items and other contract work, which will contribute to the control of erosion and sedimentation shall be carried out concurrently with earthwork operations or as soon thereafter as practicable.

E. Where erosion is likely to be a problem and where potentials for water pollution exist, the contractor shall prepare and submit to the engineer for acceptance, his proposed schedules for accomplishment of the effected work, including any temporary measures proposed. No work shall be started in the affected areas until the applicable erosion control schedules and proposed methods of operation have been accepted by the Engineer.

F. The Engineer shall have authority to limit the surface area of erodible soil that can be exposed to possible erosion at any time, without having the permanent erosion control features completed and operative.

G. While operations are in progress and prior to suspension of grading operations for longer than 7 days, areas of bare soil exposed to erosion possibility shall be shaped to permit storm runoff with minimum erosion. Temporary berms, dikes, slope drains or sedimentation basins will be required where possibilities for water pollution exist and the permanent erosion controls are not completely operative.

H. Contractor shall surround soil stockpile that remain in place seven (7) days or longer shall be surrounded by silt fence.

I. Erosion control devices shall remain in place until other means of permanent control such as turf establishment and paving has taken place.

J. Application of wood fiber blanket: Where slopes are greater than 4 feet horizontal to 1 foot vertical, apply wood fiber blanket (regular type) per State DOT Specification. See section 2.03.

K. Restoration:

1. Control of drainage and erosion shall include restoration work, as the engineer considers necessary in preventing siltation of public waters. Restoration shall include cleanup, shaping, and replacement of topsoil and establishment of vegetative cover on all disturbed areas where water pollution potentials have been increased due to the Contractor's operations.

L. Compensation:

1. All expenses incurred in complying with the provisions hereof and effectively preventing pollution of public waters shall be borne by the Contractor with no direct compensation being made therefore.

M. Installation of Silt Fence:

1. Upon completion of clearing and prior to beginning grading operations, erect silt fence structures where indicated on the Drawings
2. Erect posts securely and toe-in fabric to prevent escape of silt under the fence.
3. Dig or scrape a minimum six inch by six inch (6x6) trench where fence is to be installed or ensure sufficient fill material is available.
4. Unroll fence by section along trench or predetermined path. Position posts on downstream side of fence.
5. Drive posts into undisturbed soil until six (6) inches of fabric is in trench or laying on ground.
6. Support fabric on posts spaced approximately six (6) feet (1.8 m) on centers.
7. Place fill material in trench or on fabric flap and tamp.
8. In areas where water build-up other than sheet flow is expected or experienced, provide additional metal or wooden posts between fence posts for increased support.

9. Erect fabric fence to a height of approximately two (2) feet six (6) inches (760 mm) with an additional six (6) inch (150 mm) of fabric available for toe-in.

10. Silt fence to be maintained in good condition throughout the entire construction period.

11. Remove silt fence only when directed by the Engineer.

N. Maintenance:

1. When siltation fence and/or sediment filters have sedimentation built-up to 1/3 height, the contractor is to remove the build-up. The soils are either to be taken off the site or to a location on the site where it can be used (contact soils engineer prior to placement). The relocation and clean up of sediments is incidental to the contract.

3.3 EROSION CONTROL BLANKET - INSTALLATION

A. Properly prepare, fertilize and seed areas to be covered before blanket is applied. When the blanket is unrolled, netting should be on top and fibers in contact with the soil over the entire area.

B. In ditches, apply blankets in the direction the water flows, butting them at the ends and sides and then stapling.

C. On slopes, apply blankets vertically to the slope, butt ends and sides and then staple per manufacturer's recommendations.

D. Use wire staples, 0.091 inch in diameter or greater, "U" shaped with legs six (6) inch in length and a one (1) inch crown. Size and gauge of staples used will vary with soil conditions. Drive staples vertically into the ground. Use four (4) staples across at the start of each roll. For slope installation, continue to staple along the length of the roll at six (6) feet intervals. For ditch liner, staple along the length of the roll at four (4) feet intervals. Another row of staples in the center of each blanket should be alternately spaced between each side of either slope or ditch. Use a common row of staples on adjoining blankets.

E. The blanket should be keyed in at the top of the slope per the manufacturer's recommendations.

3.4 CONSTRUCTION ENTRANCE

A. Construct a gravel area or pad at points where vehicles enter and leave the construction site.

B. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade and place gravel to the grade and dimensions shown on the plans.

C. Construct drainage channels to carry water to a sediment trap or other suitable outlet.

D. Use geotextile fabrics to improve stability of the foundation in locations subject to seepage or high water table.

E. Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site by periodic top dressing with two (2) inch stone.

F. After each rainfall, inspect any structure used to trap sediment and clean it out as necessary.

G. Immediately remove objectionable materials spilled, washed, or tracked onto public roadways.

3.5 TEMPORARY GRASSING

A. Provide a temporary cover for erosion control on disturbed areas that will remain unstabilized for a period of more than fourteen (14) days.

B. Provide a temporary cover for erosion control on disturbed areas in accordance with MnDOT Standard Specifications for Highway Construction, latest Edition including Addenda. Mix shall be with Mix 110 or 130 per section 3876.

C. This practice applies to cleared areas, diversions, dams, temporary sediment basins, temporary road banks, and topsoil stockpiles where vegetation is needed for less than one (1) year.

D. Provide grassing on slope 5% or greater within seven (7) days of disturbance.

3.6 CATCH BASIN INLET PROTECTION

A. Construct temporary sediment barriers around storm drain inlets using the details on the Drawings.

B. Inspect structure after each rainfall and repair as required.

C. Remove sediment when trap reaches 1/2 capacity.

D. Remove structure when protected areas have been stabilized.

3.7 TEMPORARY BIO-LOGS

A. Construct temporary bio-logs where shown on Drawings using the detail on the Drawings.

B. Inspect structure after each rainfall and repair as required.

C. Remove sediment when it reaches a height of three inches adjacent to bio-log

D. Remove structure when protected areas have been stabilized.

3.8 REMOVAL

A. Remove temporary structures after protected areas have been stabilized per the State DOT Standard Specifications for Highway Construction, latest Edition including Addenda.

END OF SECTION 312500

SECTION 31 37 00

RIP RAP

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Conditions of the Contract (General, Supplementary and Other Conditions), the General Requirements (Sections of Division One) and the Drawings Apply to the Work of this Section.

B. Protective Coatings of Broken Stone in Accordance With These Specifications and In Conformity With the Lines, Grades and Thickness Indicated on the Drawings, or Established by the Engineer.

1.2 RELATED SECTIONS

A. Section 014000 - Quality Requirements.

B. Section 310000 - Earthwork

C. Section 312500 - Erosion and Sediment Control.

D. Section 334000 - Storm Drainage Utilities.

1.3 RELATED DOCUMENTS

A. State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest Edition and Addenda.

1.4 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.5 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Shop Drawings: Indicate all locations of riprap, depth, extent of areas, and edge details.

C. Samples: Submit full size samples of riprap indicating type of stone, color, and sizes.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, handle and protect products to the site under provisions of Section 016000.

B. Deliver products to the site and store in dry locations.

C. Handle rip rap so as to not damage stones.

PART 2 - PRODUCTS

2.1 HAND PLACED RIP RAP

A. Individual stones shall have a minimum mass of 50 pounds (22 kg). Smaller stones required for chinking do not have a minimum mass requirement.

2.2 CULVERT RIP RAP

A. Rip Rap at Culverts and Designated Site Areas shall be hand placed rip rap unless shown otherwise in the Plans. Stone colors and final composition as approved by the Engineer.

2.3 FILTER FABRIC

A. Provide Mirafi "180N", or approved equal by the Engineer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 HAND PLACED RIP RAP

A. Where thickness is not shown on the plans, it shall be minimum twelve inches.

B. The slope upon which this rip-rap is to be placed shall conform with the cross section shown on the plans or as directed by the Engineer.

C. Properly compact depressions that may be filled in trimming and shaping the slope.

D. Install filter fabric, lapping sides 12 inches (300 mm).

E. Begin placing in a trench at least 12 inches (300 mm) below the toe of the slope.

F. Firmly imbed against the slope and the adjoining piece with the sides in contact and with broken joints.

G. Fill the spaces between the larger pieces with spalls of suitable size, thoroughly ram into place.

H. The finished surface shall present an even, tight surface true to line, grade and section.

I. Refer to Plate SS-4 in the detail sheets of the Drawings.

END OF SECTION 313700

SECTION 32 11 23

AGGREGATE BASE COURSES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Conditions of the Contract (General, Supplementary and Other Conditions), the General Requirements (Sections of Division One) and the Drawings Apply to the Work of this Section.

B. Aggregate Base Courses Constructed on the Compacted Subgrade Where Indicated on the Drawings, as Specified Herein, and as Required for a Complete and Proper Installation.

1.2 RELATED SECTIONS

A. Section 014000 - Quality Requirements

B. Section 024113 – Selective Site Demolition

C. Section 310000 – Earthwork

D. Section 312333 – Trench Excavation and Backfill for Utilities

E. Section 321216 – Asphalt Paving

F. Section 321313 – Exterior Concrete Paving

1.3 RELATED DOCUMENTS

A. State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest Edition and Addenda.

B. The Geotechnical Evaluation Report, Project B1500402.00, dated February 27th, 2015 was prepared by Braun Intertec Corporation

1.4 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Shop Drawings: Submit shop drawings indicating exact layout of areas affected, dimensions, depths, edge treatment, and composition of all materials.

C. Samples: Submit 10 lb. (4.5 kg) sample of base course material to Independent Testing Laboratory (014000), in airtight containers for analysis.

1.5 QUALITY ASSURANCE

A. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

B. All excavations shall comply with the requirements of O.S.H.A. 29 CFR, Part 1926, Subpart P, “Excavations and Trenches”.

C. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

D. Use equipment adequate in size, capacity and numbers to accomplish the Work of this Section in a satisfactory and timely manner.

E. The Crushed Aggregate Base shall be constructed (mixed, transported, placed and compacted) in accordance with the current State DOT Standard Specifications including all addenda.

F. Any Existing gravel, concrete, and asphalt to be demolished as part of the project that is salvaged for reinstallation as fill for aggregate bases should be verified with the Geotechnical engineer prior to installation.

1.6 SITE CONDITIONS

A. Contractor shall examine the site, the Drawings and records of existing subsurface soil conditions, including subsurface explorations available from the Geotechnical Engineer, to determine the conditions under which the work will be performed. Subsurface soil investigation data, including records of test borings are made available for information only, and are not guaranteed to represent all subsurface conditions that will be encountered. The existing construction indicated, and soil investigation data represent all conditions known to the Engineer and Owner. The Contractor shall formulate his own conclusions as to the subsurface conditions and shall remove all materials to the design subgrades indicated or hereinafter specified.

B. Protection of Persons: Owner activities will continue in and about the site during construction. Install barricade fencing (snow fence), as necessary, to provide a safe environment between construction work and pedestrian circulation.

C. Existing Utilities: Locate and mark all existing utilities which are on site where work is to be performed.

D. Bench Marks and Monuments: Maintain benchmarks and monuments existing on site.

E. Protection of Existing Property to Remain: Protect existing plants, equipment and structures which are in area where work will be performed and which are to remain. Repair or replace existing property which is to remain that is damaged by the work, per Owner's approval, and at no cost to the Owner.

PART 2 - PRODUCTS

2.1 COARSE AGGREGATE

A. Provide a coarse aggregate, retained on No. 4 (5 mm) sieve, consisting of hard, durable particles of stone, reasonably free from soft, thin, elongated or laminated pieces and deleterious substances, as approved by the Geotechnical Engineer.

B. Provide aggregate with an abrasion loss of less than 65% as measured by the Los Angeles Abrasion Test.

C. Coarse stone: Crushed, natural stone; free of shale, clay, friable materials and debris; graded in accordance with State DOT Specification.

2.2 FINE AGGREGATE

A. Provide a fine aggregate consisting of material produced by stone crushing operations and approved by the Geotechnical Engineer.

B. Liquid limit shall not exceed 25% and the plasticity index shall not exceed six (6) when tested in accordance with AASHTO T-89 and T-90, respectively.

C. Sand: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter.

2.3 COMPOSITE MIXTURE

A. Produce in one crushing operation or by blending the fine and coarse aggregate in proper proportions.

B. After the materials have been mixed, laid down, and initial compaction operations begun, the composite mixture shall conform to State DOT Specifications, the geotechnical report, and the following:

Sieve Designation		Percent By Weight, Passing
2 inch	50 mm	100%
1 inch	25 mm	100%
3/4 inch	19 mm	90 – 100%
3/8 inch	9.5 mm	50 – 90%
No. 4	4.75 mm	35 – 80%
No. 10	2.00 mm	20 – 65%
No. 40	425 µm	10 – 35%
No. 200	75 µm	3 – 10%
Liquid Limit		25 Max.
Plasticity Index		06 Max.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to proper and timely completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION OF SUBGRADE

A. Proofroll all areas to receive crushed stone paving.

1. See Earthwork Section 310000

B. Remove all soft, unstable or unsuitable material that will not compact readily.

1. Remove to full depth of unsuitable material as indicated by the geotechnical engineer.
2. Replace with satisfactory materials.

C. Fill all holes, ruts or depressions which develop in the subgrade with approved on-site material, bringing the subgrade to indicated line and grades.

D. Seal roll the subgrade surface with a steel wheel roller, sealing the surface against excessive water infiltration.

3.3 PLACING AND MIXING AGGREGATE MATERIAL

A. Place aggregates using spreader boxes or other approved spreaders uniformly on one operation.

B. Take care to avoid segregation of the fine from the coarse aggregate during handling, spreading or shaping operations.

C. Mix, while at proper moisture, with motor grader or other equipment and maintain to required section and grade until thoroughly compacted.

D. Spread stone material over prepared base to a total compacted thickness as indicated on the drawings.

E. Place stone in three (3) inch (75 mm) layers and compact.

F. Add water to assist compaction. With an excess water condition, rework topping and aerate to reduce moisture content.

G. Perform hand tamping in areas inaccessible to compaction equipment.

3.4 ROLLING AND COMPACTING

A. Perform compaction using 3-wheel steel wheel roller weighing not less than 10 tons (9 metric tons), tandem roller weighing at least eight (8) tons (7 metric tons), or other rollers approved by the Engineer.

B. Start rolling at edges and proceed toward the center, continue rolling until aggregates are firmly keyed or set.

C. When initial compaction is completed, should voids remain, place fine aggregates on the surface in an amount only sufficient to fill the voids.

D. Broom, wet and roll until coarse aggregate is set, bonded and thoroughly compacted for full width and depth.

E. USE OF ANY VIBRATORY COMPACTION SYSTEM SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.

F. Proofroll in accordance to the Geotechnical Engineer.

3.5 ALLOWABLE TOLERANCES

A. Thickness Tolerance: Provide the compacted thicknesses indicated on the Drawings, within a tolerance of minus 0.5 inches (13 mm).

1. Depth measurements will be made by digging through the base at intervals no closer than 250 feet (75 meters), nor greater than 500 feet (150 meters) apart.

2. Where thickness is less than depth specified minus 1/2 inch (13 mm), it shall be corrected as directed by the Geotechnical Engineer.

B. Smoothness Tolerance: Provide the lines and grades indicated on the Drawings, within a tolerance of 3/8 inch (9 mm) in ten (10) feet (3 meters), parallel to the center line of the roadway nor more than 1/2 inch (13 mm) from a template conforming to the cross sections shown on the plans.

C. Deviations: Correct by removing materials, replacing with new materials, and reworking or re-compacting as required.

3.6 FIELD QUALITY CONTROL

A. Field inspection and testing shall be performed by qualified parties as specified herein, and in accordance with the provisions of Section 014000.

B. Classification of materials used and encountered during construction will be performed in accordance with ASTM D2488 and ASTM D2487.

C. Compaction testing will be performed in accordance with ASTM D698.

D. Observe all subgrades and excavation bases below footings and slabs before further construction is performed.

E. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

F. Frequency of Tests:

1. Sieve Analysis and abrasion test on materials – One (1) sample per 500 tons (450 metric tons). Combine three (3) samples for one (1) test. At least one (1) test for smaller quantities.

2. Compaction tests of sub-base and base materials shall be made at a maximum vertical interval of one (1) foot zero (0) inch (300 mm) per each course, and maximum horizontal intervals of 500 feet (150 meters) in each direction, or as directed by Engineer.

END OF SECTION 321123

SECTION 32 12 16

ASPHALT PAVING

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Conditions of the Contract (General, Supplementary and Other Conditions), the General Requirements (Sections of Division One) and the Drawings Apply to the Work of this Section.

B. Asphalt Paving Above Aggregate Base Course; as Indicated on The Drawings, Specified Herein, and Complete With All Accessories.

C. Aggregate Base Course.

D. Bituminous Tack Coat

E. Asphalt Paving; Binder Course and Wearing Course

F. Maintenance of Pavement

1.2 RELATED SECTIONS

A. Section 013300 – Submittal Requirements

B. Section 014000 – Quality Requirements

C. Section 310000 – Earthwork

D. Section 312333 – Trench Excavation and Backfill for Utilities

E. Section 321123 – Aggregate Base Courses

F. Section 321313 – Exterior Concrete Pavement

1.3 RELATED DOCUMENTS

A. State DOT Standard Specifications for Highway Construction, latest Edition including Addenda.

B. The Geotechnical Evaluation Report, Project B1500402.00, dated February 27th, 2015 was prepared by Braun Intertec Corporation.

1.4 PERFORMANCE REQUIREMENTS

A. The complete asphalt paving work shall give the appearance of uniformity in surface contour and texture, and shall be accurately constructed to line and grade. Joints, seams and transitions to existing paving shall show neat workmanship.

1.5 SUBMITTALS

A. Comply with pertinent provisions of Owner's General Requirements 013300 (Submittal Requirements).

B. Refer to submittal requirements with general provisions. The following shall be submitted within 15 days of contract award.

1. Complete list of all materials suppliers.

2. Proper filled out forms as required by construction manager to confirm compliance with construction manager's requirements.

3. Installation schedule.

4. Other submittals as outlined below.

C. Product Data: Provide manufacturer's data on joint filler and curing compounds.

D. Contractor to submit Bituminous Mix Formula to the Engineer for approval prior to construction.

E. Samples: Submit samples of asphalt concrete paving materials and asphalt mix design to independent testing laboratory.

F. Certificates: Contractor and Asphalt Concrete Producer shall jointly provide certificates certifying that materials comply with specification requirements.

G. Conform to State Standard Specifications – Submittal of the Job Mix Formula (JMF).

1.6 REFERENCE STANDARDS

A. Applicable reference standards are listed in Quality Requirements 014000 and include, but are not necessarily limited to the following:

1. State Department of Transportation Standard Specifications for Highway Construction, including all addenda:

a. Bituminous Tack Coat

b. Plant Mixed Asphalt Pavement

1.7 ENVIRONMENTAL REQUIREMENTS

A. Weather Limitations:

1. Apply bituminous tack coat only when the ambient temperature is at least 50 degrees F (10 degrees C), and when the temperature has not been below 35 degrees F (2 degrees C) for twelve hours immediately prior to application.

2. Do not apply materials when the base surface is wet or contains an excess of moisture which would prevent uniform distribution and the required penetration.

3. Construct asphalt pavement surface course only when atmospheric temperature is above 40 degrees F (4 degrees C), when the underlying base is dry, and when weather is not rainy.

4. Refer to the National Asphalt Pavement Association for Minimum Bituminous Placement Temperatures.

5. Paving shall not take place when, in the opinion of the testing laboratory, the weather or surface conditions are considered unfavorable.

1.8 PRODUCT HANDLING

A. Comply with manufacturer's recommendations and standard of good practice regarding shipping, delivery and handling of materials that are part of this Section.

B. In the event of damage, immediately make all repairs and replacements necessary to the approval of the consultant and at no additional cost to the Owner.

1.9 QUALITY ASSURANCE

A. Standards and Quality of Performance:

1. Comply with standards specified herein as listed in Section 014000 – Quality Requirements.

2. The quality of workmanship (appearance as well as performance) shall be first rate and considered as the type that is outstanding in the industry.

B. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

C. Do not commence placement of asphalt paving until mix designs have been reviewed and approved by the Engineer and all governmental agencies having jurisdiction and until copies of the approved mix designs are at the job site and the batch plant.

D. Provide access for, and cooperate with, the inspector and testing laboratory representative.

1.10 QUALIFICATIONS OF MANUFACTURER

A. Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a minimum ten year history of successful production acceptable to Owner.

1.11 QUALIFICATIONS OF INSTALLERS

A. The Contractor or Subcontractor and his personnel shall be currently approved by the manufacturer of the approved products as qualified to install the materials of this Section.

B. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

C. Provide a list of similar type projects completed for inspection by the Owner if required.

1.12 QUALITY CONTROL

A. Do not commence placement of asphalt paving until mix design has been reviewed and approved by the Engineer, and until copies are at the job-site, the batch plant, and the building inspection department.

B. Tests on asphalt and aggregates will be performed to ensure conformance with specified requirements.

C. General: In addition to other specified conditions, comply with the following minimum requirements:

1. Test-in-place asphalt pavement courses for compliance with requirements for density, thickness and surface smoothness.

2. Grade Control: Establish and maintain the required lines and grades, including crown and cross-slope, for each course during construction operation.

3. Provide final surfaces of uniform texture, conforming to required grades and cross-sections.

4. Take not less than two (2) inch (51 mm) diameter pavement specimens for each completed course, from locations as directed by Engineer. There will be a total of four (4) test specimens for each course or directed by the Engineer. These specimens shall be obtained by core drilling.

5. Repair holes from test specimens as specified for patching defective work.

D. Density: Minimum acceptable density of in-place course material is 93% of the recorded laboratory specimen density.

E. Thickness: In-place compacted thicknesses will not be acceptable if exceeding following allowable variation from thickness specified herein.

1. Base Course: 1/4 inch (6 mm), +/-.

2. Surface Course: 1/4 inch (6 mm), +/-.

F. Surface Smoothness Per State DOT Specifications:

1. Test finished surface of each asphalt concrete course for smoothness, using a 10 foot (3 meter) straight edge applied parallel to and at right angles in centerline of paved areas.

2. Check surfaced areas at intervals as directed by Engineer.

3. Surfaces will not be acceptable if exceeding the following:

a. Base Course: 1/4 inch (6 mm) in 10 feet (3 meters).

b. Surface Course: 3/16 inch (5 mm) in 10 feet (3 meters).

1.13 FIELD MEASUREMENTS

A. Verify actual locations of exterior concrete work and other construction to which asphalt paving work must fit, by accurate field measurements before installation; show recorded measurements on final shop drawings. Coordinate installation schedule with construction progress to avoid delay of Work.

1.14 WARRANTY

A. Provide one year written warranty under provisions of Owner's General Requirements.

B. Warranty: All materials and workmanship provided are guaranteed against defects after completion and final acceptance of the Work. Defects due to faulty materials or workmanship developed during the guarantee period shall be satisfactorily repaired or replaced by the Contractor at his expense.

C. Upon completion of the installation, the Contractor shall deliver two signed copies of the guarantee, or if applicable, warranty to the Owner.

D. This warranty offer/acceptance shall cover all material and workmanship for a minimum period of one year and the limit of liability under this warranty shall not be reduced by the accumulative cost of repairs from previous claims or by increased cost of material and labor.

E. Owner will at his discretion accept or decline the warranty. The Contractor shall meet all the terms of the warranty.

1.15 ALLOWANCES

A. Provide stipulated sum allowance to furnish and install paint striping and other markings at all areas required at the site.

PART 2 – PRODUCTS

2.1 ASPHALT BINDER MATERIAL

A. Performance Grade (PG) conforming to AASHTO M320 and the Combined State Binder Group Method of Acceptance for Asphalt Binder.

2.2 BITUMINOUS TACK COAT

A. MC Liquid Asphalt, RC Liquid Asphalt or Emulsified Asphalt. The grade to be used shall be as designated by the Engineer. MC (Medium Curing) Liquid Asphalt shall conform to AASHTO M82, 120 to 250 penetrations at 25°C (77°F). Emulsified Asphalt shall meet the requirements of AASHTO M140 subject to local or state modifications.

2.3 MIX AGGREGATE

A. Aggregate shall conform to the Class or Type allowed by local or state standards.

2.4 MIXING FACILITIES

A. Asphalt pavement surfacing materials shall be furnished from a state approved commercial asphalt central mixing plant.

2.5 MIX DESIGN

A. Design of asphalt pavement mixes shall be provided by the Contractor, and shall be obtained from a qualified independent testing laboratory or agency, properly equipped to design asphalt pavement mixes. Costs of obtaining mix designs shall be at the Contractor's expense.

B. Design of asphalt pavement mixes, including aggregate quality and gradation, shall conform with the quality requirements of the applicable State Standard Specifications.

2.6 MIX QUALITY CONTROL

A. Mix Aggregate Grading: The combined aggregate prior to the addition of asphalt binder (paving asphalt shall conform with the "Mixture Aggregate Requirements" of "Operating Range Requirements" specified in the State Standard Specifications.

B. Frequency of Tests: Minimum testing frequency shall be one (1) test for every 500 tons, or fraction thereof, for each batch of graded aggregate placed each day.

C. Asphalt Content: Asphalt content shall be within plus or minus +/-0.5% of the mix design content. Minimum testing frequency shall be one (1) test for every 500 tons, or fraction thereof, for each batch of asphalt pavement mix placed each day.

2.7 PAVEMENT MARKING PAINT

A. See Section 321723.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Verify gradients and elevations of subgrade and aggregate base course(s) are correct.

C. Beginning of installation means Engineer's acceptance of subgrade and aggregate base course(s) conditions.

3.2 TRAFFIC CONTROL

A. Maintain vehicular and pedestrian traffic during paving operations as required for other construction activities.

B. Provide flagmen, barricades, warning signs, and warning lights for movement of traffic and safety, and to cause the least interruption of work.

3.3 SURFACE PREPARATION

A. Proofroll all prepared subgrades using a heavy, rubber-tired roller. See Earthwork Section 310000 for further detail. (Amount of allowable yielding shall be one (1) inch (25 mm) maximum). THE PROOF ROLLING MUST BE OBSERVED BY THE TESTING LABORATORY INSPECTOR OR THE GEOTECHNICAL ENGINEER.

1. Check for unstable areas, and areas requiring additional compaction.

B. Do not begin paving work until such conditions have been corrected and are ready to receive paving.

C. Remove loose and foreign material from compacted sub-base surfaces immediately before paving application. Do not disturb sub-base material.

D. Tack Coat:

1. The tack coat shall not be applied when the road surface is wet or when the weather conditions are unsuitable.

2. The Contractor shall have sole responsibility of claims of tack coat on personal property due to lack of notification or signage of the area being tack coated.

3. Apply to contact surfaces of previously constructed Portland Cement concrete surfaces and similar surfaces. Along the front edge of all existing concrete curb and gutter and existing bituminous pavements adjacent to the area to be patched.

4. Apply at rate of 0.05 gallons per sq. yd. of surface.

5. Apply tack coat by brush to contact surfaces of concrete curbs, gutters, manholes, and other structures projecting into or abutting asphalt concrete pavement.

6. Allow surfaces to dry until material is at condition of tackiness and ready to receive pavement.

3.4 AGGREGATE BASE PLACEMENT

A. Spread aggregate base over prepared base to a total compacted thickness as indicated on the Drawings.

B. Place aggregate base in lifts as specified by the Geotechnical Engineer.

C. Level and contour surfaces to elevations and gradients indicated on the Drawings.

D. Compact placed aggregate materials to achieve compaction to 100% of its maximum dry density in accordance with ASTM D698.

E. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

F. Use mechanical vibrating tamping in areas inaccessible to compaction equipment.

3.5 PLACING THE MIX – MUTIPLE COURSES

A. Place asphalt concrete mixture on prepared surfaces, spread and strike-off using paving machine.

B. Inaccessible and small areas may be placed by hand.

C. Place each course at thickness so that when compacted it will conform to the indicated grade, cross-section, finish thickness, and density indicated.

D. Pavement Placing:

1. Unless otherwise directed, begin placing binder course at high side of section on one-way slope.
2. After first strip has been placed and rolled, place succeeding strips.
3. Complete binder courses for a section before placing wearing courses.
4. Place mixture in continuous operation as practicable.
5. Place tack coat before placing wear course and in between binder layers.
6. Base course shall be swept and cleaned as required before placing wear course.
7. Contractor to submit Bituminous Mix Formula to the Engineer for approval prior to construction.
8. Existing bituminous surfaces must be dry prior to placement of any bituminous pavements.
9. During the placement of the wear course mixtures the Contractor must provide a minimum of six (6) personnel as follows.
    a. One (1) paver operator.
    b. Two (2) persons to operate the adjustment screws on the back of the paver.
    c. One (1) bituminous finisher (raker).
    d. One (1) rubber tire roller operator.
    e. One (1) steel drum roller operator.

    Compaction operations may require additional roller operators to obtain the required densities.

E. Hand Placed:

1. Spread, tamp and finish mixture using hand tools in areas where machine spreading is not possible, as acceptable to Geotechnical Engineer.
2. Place mixture at a rate that will insure handling and compaction before mixture becomes cooler than acceptable working temperature.

F. Joints:

1. Gradually make joints between old and new pavements, or between successive day's work, to ensure a continuous bond between adjoining work.
2. Construct joints to have same texture, density and smoothness as adjacent sections of asphalt concrete course.
3. Clean contact surfaces free of sand, dirt, or other objectionable material and apply tack coat.
4. Offset transverse joints in succeeding courses not less than five (5) feet (1.5 meters).
5. Cut back edge of previously placed course to expose an even, vertical surface for full course thickness.
6. Offset longitudinal joints in succeeding courses no less than six (6) inches (150mm).
7. When the edges of longitudinal joints are irregular, honeycombed, or inadequately compacted, cut back unsatisfactory section to expose as even, vertical surface for full course thickness.

3.6 COMPACTING THE MIX

A. Provide sufficient number of rollers to obtain the required pavement density of 93% of the recorded laboratory specimen density.

B. Begin rolling operation as soon after placing mix when the mixture will bear weight of roller without excessive displacement.

C. Do not permit heavy equipment, including rollers to stand on finished surface before it has thoroughly cooled or set.

D. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

E. Start rolling longitudinally at extreme lower side of sections and proceed toward center of pavement. Roll to slightly different lengths on alternate roller runs.

F. Do not roll centers of section first under any circumstances.

G. Breakdown Rolling:

1. Accomplish breakdown or initial rolling immediately following rolling of transverse and longitudinal joints and outside edge.
2. Operate rollers as close as possible to paver without causing pavement displacement.
3. Check crown, grade and smoothness after breakdown rolling.
4. Repair displaced areas by loosening at once with lutes or rakes and filling, if required, with hot loose material before continuing rolling.

H. Second Rolling:

1. Follow breakdown rolling as soon as possible, while mixture is hot and in condition for compaction.
2. Continue second rolling until mixture has been thoroughly compacted.

G. Finish Rolling:

1. A pneumatic tired roller shall be used for finish rolling.
2. Perform finish rolling while mixture is still warm enough for removal of roller marks.
3. Continue rolling until roller marks are eliminated and course has attained specified density.

J. Patching:

1. Remove and replace defective areas.
2. Cut-out and fill with fresh, hot asphalt concrete.
3. Compact by rolling to specified surface density and smoothness.
4. Remove deficient areas for full depth of course.
5. Cut sides perpendicular and parallel to direction of traffic with edges vertical.
6. Apply tack coat to exposed surfaces before placing new asphalt concrete mixture.

3.7 MANHOLE AND GATE VALVE PROTECTION

A. Cover manholes, catch basins and gate valves lying within the surface to be sealed so as to prohibit the bituminous material from being placed thereon.

B. Clean the surface of these structures following the application of the cover aggregate.

3.8 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch (6 mm) measured with 10 foot (3 meter) straight edge.

B. Scheduled Compacted Thickness: Within 1/4 inch (6 mm).

C. Variation from True Elevation: Within 1/4 inch (6 mm).

3.9 FIELD QUALITY CONTROL

A. Field-testing and inspection shall be performed by qualified parties as specified herein and in accordance with the provisions of Section 014000.

B. Conventional testing and inspection services herein describe those items not specifically required by State DOT but are considered essential to the proper performance of the building systems.

C. Flood Test:

1. After completion, flood the entire asphalt concrete paved areas with water by use of a tank truck or hoses.

2. If a depression is found where water ponds to a depth of more than 1/8 inch (3 mm) in six (6) feet (1.8 meters), fill areas or otherwise correct to provide proper drainage.

3. Feather and smooth the edges of fill so that the joint between fill and original surface is invisible.

D. If any tests indicate work does not meet specified requirements, remove work, replace and retest at no additional cost to Owner.

E. Take asphalt mixture samples and perform tests in accordance with AI MS-2.

3.10 CLEANING

A. After completion of paving operations, clean surfaces of excess or spilled asphalt materials to the satisfaction of the Engineer.

B. When marking paint is thoroughly dry, visually inspect the entire application, and:

1. Touch-up paint as required to provide clean, straight lines and surfaces throughout.

2. Using a permanently opaque paint identical in color to the surface on which the paint was applied, block out and eliminate all traces of splashed, tracked and/or spilled pavement marking paint from the background surfaces.

3.11 PROTECTION

A. Contractor shall be required to protect all adjacent concrete surfaces from chipping and damage during the asphalt paving placement.

B. Protect all concrete surfaces from staining or discoloration during placement of asphalt materials or vehicle trucking during construction.

C. Immediately after placement of asphaltic paving, provide traffic cones, barricades and other devices needed to protect pavement and marking paint from mechanical injury for minimum of seven (7) days.

3.12 MAINTENANCE OF PAVEMENT

A. Upon completion of final rolling, traffic shall not be permitted on the finished pavement for at least six (6) hours and until the asphalt pavement has cooled sufficiently to withstand traffic without being deformed.

B. Finished pavement shall be maintained in finished clean condition until the work is accepted by the Engineer.

END OF SECTION 32 12 16

SECTION 32 13 13

EXTERIOR CONCRETE PAVING

PART I – GENERAL

1.1 SECTION INCLUDES

A. Conditions of the Contract (General, Supplementary and Other Conditions), the General Requirements, and the Drawings Apply to the Work of this Section.

B. Exterior Concrete Pavement Systems Above Base Course; as Indicated on The Drawings, Specified Herein, and Complete With All Accessories.

C. Aggregate Base Course at Curb and Gutter Areas Adjacent to Asphalt and Concrete Paving Areas.

D. Granular Base Under All Other Exterior Concrete Work: Specified Under Provisions of Section 310000 – Earthwork.

E. Exterior Concrete Work:

1. Sidewalks.
2. Aprons and Driveway Slabs.
3. Straight Curbs.
4. Curb and Gutter.
5. Pedestrian Ramps.
6. Ribbon Curb.

F. Provide Sealant and Joint Backing Form Materials in accordance with the State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest edition and addenda.

1.2 RELATED WORK DESCRIBED ELSEWHERE

A. Section 013300 – Submittal

B. Section 014000 – Quality Requirements

C. Section 310000 – Earthwork

D. Section 321123 – Aggregate Base Courses

E. Section 321723 – Pavement Marking

1.3 RELATED DOCUMENTS

A. State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest edition and addenda.

B. The Geotechnical Evaluation Report, Project B1500402.00, dated February 27th, 2015 was prepared by Braun Intertec Corporation.

1.4 PERFORMANCE REQUIREMENTS

A. The complete exterior concrete Work shall give the appearance of uniformity in surface contour and texture, and shall be accurately constructed to line and grade. The required joints shall show neat workmanship.

B. Provide concrete curbing in accordance with local governmental agency requirements, unless otherwise specified or indicated on the Drawings.

1.5 SUBMITTALS

A. Comply with pertinent provisions of Owner's General Requirements 013300 (Submittal Procedures).

B. Refer to submittal requirements with general provisions. The following shall be submitted within 15 days of contract award.

1. Complete list of all materials suppliers.
2. Proper filled out forms as required by construction manager to confirm compliance with construction manager's requirements.
3. Installation schedule.
4. Other submittals as outlined below.

C. Shop Drawings: Indicate all exterior concrete types and locations, dimensions, termination details, control and expansion joints.

D. Product Data: Provide manufacturer's data on joint filler and curing compounds.

E. Concrete Design Mix: Submit substantiating data for concrete mix design to the Engineer and Independent Testing Agency not less than two (2) weeks prior to concrete placement. Data for mix shall, as a minimum, include the following:

1. Mix identification designation.
2. Statement of intended use for mix.
3. Mix proportions, including all admixtures.
4. Manufacturer's data and/or certification verifying conformance of all mix materials, including admixtures with specific requirements.
5. Wet and dry aggregate unit weight.
6. Entrained air content.
7. Design slump.
8. Required average strength qualification data per ACI 301: 3.9.1 and 3.9.2.

1.6 REFERENCE STANDARDS

A. Applicable reference standards including, but are not necessarily limited to the following:

1. State Department of Transportation (DOT) Standard Specifications for Highway Construction, including all addenda:

1.7 ENVIRONMENTAL REQUIREMENTS

A. Do not place exterior concrete when base surface temperature is less than 40 degrees f (4 degrees c), or surface is wet or frozen.

1.8 PRODUCT HANDLING

A. Comply with manufacturer's recommendations and standard of good practice regarding shipping, delivery and handling of materials that are part of this Section.

B. Transit mix the concrete in accordance with provisions of ASTM C94.

1. With each load, provide ticket certifying to the materials and quantities and to compliance with the approved mix design.

2. On the transit-mix ticket, state the time water was first added to the mix.

3. Unless otherwise directed provide 15 minutes total mixing time per batch after first addition of water.

4. Do not use concrete that has stood over 30 minutes after leaving the mixer or concrete that is not placed within 60 minutes after water is introduced into the mix.

C. In the event of damage, immediately make all repairs and replacements necessary to the approval of the consultant and at no additional cost to the Owner.

1.9 QUALITY ASSURANCE

A. Standards and Quality of Performance:

1. Comply with standards specified herein as listed in Section 014000.

2. The quality of workmanship (appearance as well as performance) shall be first rate and considered as the type that is outstanding in the industry.

B. Perform work in accordance with ACI 301 and ACI 318.

C. Acquire cement and aggregate from same source for all Work.

D. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

E. Do not commence placement of concrete until mix designs have been reviewed and approved by the Engineer and all governmental agencies having jurisdiction and until copies of the approved mix designs are at the job site and the batch plant.

F. Provide access for, and cooperate with, the inspector and testing laboratory representative.

1.10 QUALIFICATIONS OF MANUFACTURER

A. Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a minimum ten year history of successful production acceptable to Owner.

1.10 QUALIFICATIONS OF INSTALLERS

A. The Contractor or Subcontractor and his personnel shall be currently approved by the manufacturer of the approved products as qualified to install the materials of this Section.

B. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

C. Provide a list of similar type projects completed for inspection by the Owner if required.

1.11 QUALITY CONTROL

A. Provide concrete mix design under provisions of Section 014000.

B. Do not commence placement of concrete until mix design has been reviewed and approved by the Engineer, and until copies are at the job-site, the batch plant, and the building inspection department.

C. Submit proposed mix design of each class of concrete to appointed firm for review prior to commencement of work.

D. Tests on cement and aggregates will be performed to ensure conformance with specified requirements.

E. Test samples in accordance with ACI 301.

1.12 FIELD MEASUREMENTS

A. Verify actual locations of exterior concrete work and other construction to which concrete work must fit, by accurate field measurements before installation; show recorded measurements on final shop drawings. Coordinate installation schedule with construction progress to avoid delay of Work.

1.13 WARRANTY

A. Provide one year written warranty.

B. Warranty: All materials and workmanship provided are guaranteed against defects after completion and final acceptance of the Work. Defects due to faulty materials or workmanship developed during the guarantee period shall be satisfactorily repaired or replaced by the Contractor at his expense.

C. Upon completion of the installation, the Contractor shall deliver two (2) signed copies of the guarantee, or if applicable, warranty to the Owner.

D. This warranty offer/acceptance shall cover all material and workmanship for a minimum period of one (1) year and the limit of liability under this warranty shall not be reduced by the accumulative cost of repairs from previous claims or by increased cost of material and labor.

E. Owner will at his discretion accept or decline the warranty. The Contractor shall meet all the terms of the warranty.

PART II – PRODUCTS

2.1 BASE MATERIALS

A. Stabilized Aggregate Base: 100% crushed quarry rock meeting requirements of local governmental agency.

(1) Provide under concrete curb and gutter and all concrete pavement areas indicated on the Drawings.

B. Fine Aggregate: Natural river or bank sand; washed free of silt, clay, loam, friable or soluble materials; and graded in accordance with ANSI/ASTM C136.

C. Provide granular cushion material under all other exterior concrete work as specified under provisions of Section 321123 – Aggregate base Courses.

2.2 FORM MATERIALS

A. Form materials as given in ACI 301. Do not use aluminum materials in contact with concrete. Concrete form materials must be used in a manner to provide the surface finish specified.

B. Construct forms with tight joints to the exact sizes, shapes, lines and dimensions shown and as required to obtain accurate alignment, location, grades, level and plumb work in the finished structure.

C. Earth forms will not be permitted for paving.

D. Form Coating Material: Coat forms with a non-staining form release agent that will not discolor or deface the surface of the concrete.

E. Pre-Formed Expansion Joint Filler: Comply with requirements under ACI 301.

2.3 REINFORCEMENT

A. Reinforcing Steel: Epoxy coated Deformed steel bars, ASTM A185, Grade 60, sizes as indicated on the Drawings.

B. Fabricate reinforcement to the required shapes and dimensions, with fabrication tolerances complying with the CRSI "Manual of Standard Practices”.

C. Do not use reinforcement having any of the following defects:

1. Bar lengths, depths or bends exceeding the specified fabricating tolerances.

2. Bends or kinks not indicated on the Drawings or required for the Work.

3. Bars with cross-section reduced due to excessive rust or other causes.

D. Steel Dowels: ASTM A615; 60 ksi yield grade, plain steel bars, cut bars true to length with ends square and free of burrs.

1. Dowels: #8 bars, unfinished, unless noted otherwise.

2.4 CONCRETE MATERIALS

A. Typical Exterior Concrete Materials: Minimum 4,000 psi (27.5 Mpa) compressive strength (28 days), 1-1/4)inch (32 mm) maximum course aggregate (ASTM C33), air entrainment as required (ASTM C260), 0.45 maximum water/cementitious materials ratio, 3-4 inches (75-100 mm) slump, 5.75 sacks minimum cement content /CY (7.5 sacks/m³) and 6% +/- 1% air content. Mixtures shall have air content by volume of concrete 5-7%, based on measurements made immediately after discharge from the mixer. Portland cement: ASTM C150, Type I or II, low alkali.

B. Use only such additives as are recommended in the mix design and approved by the Engineer and governmental agencies having jurisdiction.

C. Provide concrete in the proportions established by the approved mix design.

D. Aggregate:

1. ASTM C29 uniformly graded and clean.

2. Do not use aggregate known to cause excessive shrinkage.

3. Aggregate, coarse: Crushed rock or washed gravel with maximum size between 3/4 inch and one and 1-1/4 inch (18 mm and 32 mm), and with minimum size number four (#4) (5 mm).

4. Aggregate, fine: Natural washed sand of hard and durable particles varying from fine to particles passing a 3/8 inch (9 mm) screen, of which at least 12% shall pass a 50 -mesh screen (300µm sieve).

E. Water: Clean and potable.

F. Curbing Concrete:

1. State Department of Transportation Specifications.

2. In production of curbing concrete, add an air-entraining agent to the mix in the amount necessary to produce concrete having an air content within the ranges of 4.5-6.5%. Make every effort to maintain this air content within a range of 5-6%.

G. Air-Entraining Mixture: State DOT Specification.

2.5 ACCESSORIES

A. Cure & Hardener: Water based, white pigmented curing compound containing white pigments and resins in suspension. Formulated to retain a minimum of 95% moisture in freshly poured concrete, VOC compliant, and meets ASTM C309, Type 2, Class A & B.

B. Acceptable Manufacturers:

1. Dayton-Superior - Day-Chem White Pigmented Cure (J-10-W).

2. W. R. Meadows - 1200-White.

3. L&M Chemicals - L&M Cure R-2.

4. Substitutions under provisions of Section 012500.

C. Membrane Curing Compound: State DOT.

D. Concrete Treating Oil: State DOT.

E. Sealant and Joint Backing in accordance with the State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest edition and addenda.

2.6 PAVEMENT MARKING PAINT

A. See section 321723.

PART III – EXECUTION

3.1 EXAMINATION

A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Verify compacted granular base is acceptable and ready to support paving and imposed loads.

C. After preparation of subgrade as specified in another Section of these Specifications, thoroughly scarify and sprinkle the entire are to be paved and then compact to a smooth, hard, even surface and compact to 100% of the maximum standard proctor dry density to receive the aggregates, or as approved by the Soils Engineer.

D. Verify gradients and elevations of base are correct.

3.2 BASE PLACEMENT

A. Spread aggregate base (Section 321123), at curb and gutter sections and all other areas indicated on the Drawings, over prepared base to a total compacted thickness as indicated on the Drawings.

B. Place aggregate or granular base in maximum three (3) inch (75 mm) layers and roller compact.

C. Level and contour surfaces to elevations and gradients indicated on the Drawings.

D. Compact placed aggregate materials to achieve compaction to 100% of its maximum dry density in accordance with ASTM D698.

E. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

F. Thickness tolerance: Provide the compacted thickness shown on the Drawings within a tolerance of minus 0.0" to plus 0.5” (13 mm).

G. Smoothness tolerance: Provide the lines and grades shown on the Drawings within a tolerance of 0.05 feet (15 mm) vertically and one (1) inch (25 mm) alignment at any point.

H. Correct deviations by removing materials, replacing with new materials and reworking or recompacting as required.

I. Use only the amount of moisture needed to achieve the specified compaction.

J. Use mechanical vibrating tamping in areas inaccessible to compaction equipment.

3.3 PREPARATION

A. Coat surfaces of manhole and catch basin frames with oil to prevent bond with concrete pavement.

B. Contractor shall notify the Owner and Independent Inspection Agency a minimum of 24 hours prior to commencement of concreting operations.

C. Base Preparation: The base shall be well drained and compacted with an approved vibrator compactor to a firm, uniform bearing surface, conforming to the planned section and established grade. Granular materials shall be thoroughly wet down so as to be in a moist condition immediately prior to placement of concrete.

3.4 FORMING

A. Place and secure forms to correct location, dimension and profiles.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

D. Install forms to allow continuous progress of Work and so that forms can remain in place at least twenty-four hours after concrete placement.

3.5 REINFORCEMENT

A. Place reinforcement as indicated on Drawings.

B. Upon completion of base course and formwork, install reinforcement (if required) as shown on the Drawings:

1. Clean reinforcement to remove loose mill scale, earth and other materials which reduce bond or destroy bond with concrete.

2. Position, support and secure reinforcement against displacement by formwork, construction and concrete placement operations.

3. Place reinforcement to obtain the required coverages for concrete protection.

C. Provide Reinforcement at contraction and expansion joints as indicated on the Drawings.

D. Place reinforcement to achieve pavement and curb alignment as detailed on the Drawings.

E. Provide doweled joints 22 inches o.c. where indicated on Drawings with one (1) end of dowel set in capped sleeve to allow longitudinal movement.

3.6 PLACING CONCRETE

A. Place concrete in accordance with ACI 301, and comply with requirements for mixing and placing concrete as herein specified.

B. Ensure reinforcement, inserts, embedded parts and formed joints are not disturbed during concrete placement.

C. Place concrete continuously between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

D. Place concrete to pattern indicated on Drawings, or as directed by the Engineer.

E. Place concrete by methods that prevent segregation of the mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement and side forms.

F. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

G. If a section cannot be placed continuously, provide construction joints as specified herein.

H. Perform concrete placing at such a rate that concrete which is being integrated with fresh concrete is still plastic.

I. Do not subject concrete to any procedure which will cause segregation.

J. Do not use concrete which becomes non-plastic and unworkable or does not meet required quality control limits or has been contaminated by foreign materials.

K. Remove rejected concrete from the site.

L. Deposit and consolidate concrete in a continuous operation within the limits of construction joints until the placing of a panel or section is completed.

1. Bring surfaces to the correct level with a straightedge and then strike off.

2. Use bullfloats or darbies to smooth the surface, leaving it free from bumps and hollows.

3. Do not sprinkle water on the plastic surface. Do not disturb the surfaces prior to start of finishing operations.

3.7 JOINTS

A. Contractor shall submit full jointing plan to engineer for review prior to construction.

B. Expansion Joints: Joints shall be filled with 1/2 inch (13 mm) thick preformed joint filler material, and shall be installed in the following locations:

1. At the beginning and end of all curved sections.

2. Where all new concrete surrounds, adjoins or abuts any existing fixed objects, such as fire hydrants, valve boxes, manholes, light poles, flag poles, curbs, walks or other rigid structures.

3. At sixty (60) foot maximum spacing or see plan.

C. Contraction Joints:

1. Contraction joints shall be spaced at the intervals shown in the Plans. Spacing shall be shortened as necessary to provide panel lengths not less than 10 feet (3 m) long adjacent to header joints, reinforced panels, railroad grades and free ends.

2. Curbing shall be provided with contraction joints at eight (8) foot zero (0) inch (2440 mm) on centers, or as indicated on the Drawings.

D. General: All joints shall be vertical and straight. Transverse joints shall be placed at right angles to the longitudinal axis of the Work. Joints shall align with similar joints in adjoining work where practical.

E. All joint work shall coordinate precisely with grids, modules and radials as prescribed. Contractor shall submit jointing plan to engineer for review prior to construction as indicated on the Drawings.

F. When joining existing structures, place transverse joints to align with previously placed joints, unless otherwise indicated.

G. The location of each transverse joint shall be marked in a manner satisfactory to the Engineer prior to the placement of the concrete. Where joints are to be sawed, the markings shall be transferred to the fresh concrete as soon as the final finishing operations have been completed.

H. The initial sawing shall be accomplished as soon as the condition of the concrete will permit without raveling and before random cracking occurs. The sequence of initial sawing shall be at the Contractor's option. Widening of the joints shall be delayed until the concrete is at least 24 hours old and shall be delayed longer when the sawing causes raveling. Water under nozzle pressure shall be used to remove the sawing residue from each joint and the pavement surface immediately after completing the sawing. Any fugitive dust opacity observed by the Owner or Engineer may result in a requirement to shutdown saw cutting operation.

I. The ends of transverse joints shall be protected to prevent concrete mortar from infiltrating into the existing joints.

3.8 CONCRETE FINISHING

A. After striking off and consolidating concrete, smooth surfaces by screeding and floating. Use hand methods only where mechanical floating is not possible. Adjust floating to compact surface and produce uniform texture.

B. After floating and before final finishing, check the concrete with a 10 foot (3 meter) steel straight edge to ensure there is no variation greater than 3/16 inches (5 mm) from the straight edge. Cut down high spots and fill low spots and produce a surface level within 1/4 inch (6 mm) in two (2) feet (600 mm) as determined by a two (2) foot (600 mm) straightedge placed anywhere on the surface in any direction. Refloat the surface immediately to a uniform sandy texture.

C. Work edges of slabs, gutters, back top edge of curbs, and formed joints with an edging tool, and round to 1/2 inch (13 mm) radius, unless otherwise indicated. Eliminate tool marks on concrete surfaces.

D. After completion of floating and when excess moisture or surface sheen has disappeared, complete troweling and finish surfaces as follows:

1. Sidewalks: Light broom, radius edges to one (1) inch (25 mm), and trowel joint edges.

2. Curbs and Gutters: Light broom.

3. Straight Curbs: Light broom, radius edges to one (1) inch (25 mm), and trowel joint edges.

E. Concrete scoring pattern shall be completed as shown on plans and the pattern shall be approved by the Engineer prior to construction.

3.9 CONCRETE CURING

A. Compound Application:

1. Apply a membrane curing compound to the exposed surface of the concrete within one (1) hour of finishing the concrete.

2. If forms are removed in less than 72 hours after placing the concrete, apply the curing compound immediately to the exposed surfaces.

3. Apply the curing compound by an approved airless spraying machine at the approximate rate of one gallon of compound to 150 square feet of surface curing area.

4. In all cases, the Contractor is responsible for the protection of the concrete from frost during the cure period.

5. Concrete placement will be shut down by the Owner or Engineer if the operations are not being carried out according to these specifications.

3.10 FIELD QUALITY CONTROL

A. Perform field testing and inspection by qualified parties as specified herein and in accordance with the provisions of Section 014000.

B. Conventional testing and inspection services herein describe those items not specifically required by State DOT, but are considered essential to the proper performance of the building systems.

C. Testing firm will take cylinders and perform slump and air entrainment tests in accordance with ACI 301.

D. Three concrete test cylinders will be taken for every 75 or less cubic yards (57 m^3) of each class of concrete placed each day.

E. One additional test cylinder will be taken during cold weather and cured on site under same conditions as concrete it represents.

F. One slump test will be taken for each set of test cylinders taken.

G. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

H. Contractor shall ensure that concrete matches into existing conditions and provides positive drainage.

3.11 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Protect concrete from any damages until surface has hardened.

END OF SECTION 321313

SECTION 32 17 23

PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 247 (1981; Rev 1986) Glass Beads Used in Traffic Paint

AASHTO M 248 (1991I) Ready-Mixed White and Yellow Traffic Paints

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 792 (1991) Density and Specific Gravity (Relative Density) of Plastics by Displacement

ASTM D 4280 (1995) Extended Life Type, Nonplowable, Prismatic, Raised, Retroreflective Pavement Markers

ASTM D 4505 (1992) Preformed Plastic Pavement Marking Tape for Extended Service Life

ASTM E 28 (1992) Softening Point by Ring-and-Ball Apparatus

FEDERAL SPECIFICATIONS (FS)

FS TT-B-1325 (Rev C) Beads (Glass Spheres) Retro-Reflective (Metric)

FS TT-P-1952 (Rev D) Paint, Traffic and Airfield Marking, Waterborne (Metric)

1.2 RELATED DOCUMENTS

A. State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest edition and addenda.

1.3 QUALITY ASSURANCE

A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.4 PRODUCT HANDLING

A. All materials shall be delivered and stored in sealed containers that plainly show the designated name, formula or specification number, batch number, color, date of manufacture, manufacturer's name, and directions, all of which shall be plainly legible at time of use.

1.5 HAND-OPERATED, PUSH-TYPE MACHINES

A. All machines, tools, and equipment used in performance of the work shall be approved and maintained in satisfactory operating condition. Hand-operated push-type machines of a type commonly used for application of paint to pavement surfaces shall be acceptable for marking small streets and parking areas. Applicator machine shall be equipped with the necessary paint tanks and spraying nozzles, and shall be capable of applying paint uniformly at coverage specified. Sandblasting equipment shall be provided as required for cleaning surfaces to be painted or removal of existing stripping patterns. Hand-operated spray guns shall be provided for use in areas where push-type machines cannot be used.

PART 2 - PRODUCTS

2.1 PAINT

A. The paint shall be homogeneous, easily stirred to smooth consistency, and shall show no hard settlement or other objectionable characteristics during a storage period of six (6) months. Paint for parking areas and drives shall conform to AASHTO M 248, color as indicated. Pavement marking paints shall comply with applicable state and local laws enacted to ensure compliance with Federal Clean Air Standards. Paint materials shall conform to the restrictions of the local Air Pollution Control District.

2.2 SAMPLING AND TESTING

A. Materials proposed for use shall be stored on the project site in sealed and labeled containers, or segregated at source of supply, sufficiently in advance of needs to allow 60 days for testing. Upon notification by the Contractor that the material is at the site or source of supply, a sample shall be taken by random selection from sealed containers by the Contractor in the presence of a representative of the Contracting Officer. Samples shall be clearly identified by designated name, specification number, batch number, manufacturer's formulation number, project contract number, intended use, and quantity involved. Testing shall be performed in an approved independent laboratory. If materials are approved based on reports furnished by the Contractor, samples will be retained by the Government for possible future testing should the material appear defective during or after application.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

A. Surfaces to be marked shall be thoroughly cleaned before application of the pavement marking material. Dust, dirt, and other granular surface deposits shall be removed by sweeping, blowing with compressed air, rinsing with water or a combination of these methods as required. Rubber deposits, surface laitance, existing paint markings, and other coatings adhering to the pavement shall be completely removed with scrapers, wire brushes, sandblasting, approved chemicals, or mechanical abrasion as directed. Areas of old pavement affected with oil or grease shall be scrubbed with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinsed thoroughly after each application. After cleaning, oil-soaked areas shall be sealed with cut shellac to prevent bleeding through the new paint. Pavement surfaces shall be allowed to dry, when water is used for cleaning, prior to striping or marking. Surfaces shall be recleaned, when work has been stopped due to rain.

B. Pretreatment for Early Painting

1. Where early painting is required on rigid pavements, a pretreatment with an aqueous solution containing 3% phosphoric acid and 2% zinc chloride shall be applied to prepared pavement areas prior to painting.

C. Cleaning Concrete Curing Compounds

1. On new portland cement concrete pavements, cleaning operations shall not begin until a minimum of 30 days after the placement of concrete. All new concrete pavements shall be cleaned by either sandblasting or water blasting. When water blasting is performed, thermoplastic and preformed markings shall be applied no sooner than 24 hours after the blasting has been completed. The extent of the blasting work shall be to clean and prepare the concrete surface as follows:
   a. There is no visible evidence of curing compound on the peaks of the textured concrete surface.
   b. There are no heavy puddled deposits of curing compound in the valleys of the textured concrete surface.
   c. All remaining curing compound is intact; all loose and flaking material is removed.
   d. The peaks of the textured pavement surface are rounded in profile and free of sharp edges and irregularities.
   e. The surface to be marked is dry.

3.2 APPLICATION

A. All pavement markings and patterns shall be placed as shown on the plans.

B. Paint

1. Paint shall be applied to clean, dry surfaces, and only when air and pavement temperatures are above 5 degrees C (40 degrees F) and less than 35 degrees C (95 degrees F). Paint temperature shall be maintained within these same limits. New asphalt pavement surfaces and new portland concrete cement shall be allowed to cure for a period of not less

than 30 days before applications of paint. Paint shall be applied pneumatically with approved equipment at rate of coverage specified herein. The Contractor shall provide guide lines and templates as necessary to control paint application. Special precautions shall be taken in marking numbers, letters, and symbols. Edges of markings shall be sharply outlined.

C. Rate of Application

1. Nonreflective Markings: In accordance with the State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest edition and addenda.

D. Drying

1. The maximum drying time requirements of the paint specifications will be strictly enforced to prevent undue softening of bitumen, and pickup, displacement, or discoloration by tires of traffic. If there is a delay in drying of the markings, painting operations shall be discontinued until cause of the slow drying is determined and corrected.

END OF SECTION 321723

SECTION 32 92 00

TURF AND GRASSES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Conditions of the Contract (General, Supplementary and Other Conditions), the General Requirements (Sections of Division One) and the Drawings Apply to the Work of this Section.

B. Provide Labor, Materials, Equipment and Other Related Services Required for Installation of Turf and Grasses as Indicated on the Drawings, and Specified Herein.

C. Placing and preparation of topsoil.

D. Mulching and fertilizer.

E. Maintenance.

1.2 RELATED SECTIONS

A. Section 014000 – Quality Requirements.

B. Section 310000 – Earthwork.

C. Section 311000 – Site Clearing.

1.3 RELATED DOCUMENTS

A. State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest edition and addenda.

1.4 MONUMENTS

A. Maintain benchmarks, monuments and other reference points. If disturbed or destroyed, replace or relocate by a Registered Land Surveyor at the Contractor's expense.

1.5 LIMITS OF WORK

A. Seed all areas indicated on the Drawings. Landscape Plan is prepared by others and shall govern all seeding operations unless indicated otherwise.

1.6 QUALITY ASSURANCE

A. Submittals:

1. Submit printed information on Seed Mixtures, including the Species and weight ratios to Engineer for approval.

B. Experience and Qualifications:

1. The products and work shall be supplied by a Contractor having a minimum of five (5) consecutive years experience in native grass/forb seeding and planting establishment and be certified in this field.

1.7 PROTECTION

A. Protect remaining plants, buildings, and other fixed objects, conduct all seeding operations in a manner that will not damage or jeopardize surrounding plant life as designated on the Drawings to remain.

PART 2 - PRODUCTS

2.1 SEED

A. Seed Mixture: As indicated on the Landscape Drawings unless designated otherwise in the Plans.

B. Delivery, Storage and Handling: Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

2.2 FERTILIZER

A. Fertilizer: Phosphorus free Commercial formula, recommended for specified seeding, with 50% of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated by analysis containing minor trace elements and conforming to applicable State fertilizer laws.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

2.3 WATER

A. Water: Suitable for irrigation and free from ingredients harmful to plant life. Water provided by the Contractor at no additional cost to the Owner. Water seeded areas until approval of the Engineer and responsibility of maintenance accepted by the Owner.

2.4 TOPSOIL

A. Spread approved topsoil on all turf and grass areas disturbed by grading to a minimum depth of six (6) inches prior to the installation of the ground cover unless indicated otherwise.

B. Topsoil: Excavated from site. If not available, then natural, friable, fertile fine sandy loam possessing the characteristics of representative topsoil in the vicinity that produce heavy growths of vegetation. Free from subsoil, noxious weeds, stones, lime, concrete, ashes, slag, or other deleterious matter, well drained in its original condition and free of toxic quantities of acid or alkaline elements. It shall contain sand and clay in approximately equal proportions, have an organic content by weight of not less than 2% nor more than 20% as determined by laboratory tests. The pH shall be between 6 and 7.

2.5 MULCH

A. Grain straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 GROUND PREPARATION

A. All areas undisturbed by grading and demolition shall be stripped of existing turf and ground cover, scarified to a depth of six (6) inches (150 mm), and raked completely smooth and free of any debris (rubble, sticks, branches, stones and extraneous material over 1/2 inch (13 mm) diameter on the surface which will interfere with the turf or grass by the Contractor.

B. It is the Grading Contractor's responsibility to bring all graded areas within six (6) inches of final grade in these areas, and then to place six (6) inches of topsoil per Section 310000 - Earthwork. It is Contractor's responsibility to verify the finish grade and topsoil condition prior to seeding.

C. Where building, hard surface or other site elements have been demolished and or removed it shall be the Grading Contractor's responsibility to bring these areas within six (6) inches (150 mm) of final grade with clean organic fill material and then to place six (6) inches (150 mm) of topsoil in preparation of Contractor's installation of seeding.

D. Immediately prior to seeding, the Contractor shall loosen topsoil to a depth of three (3) inches (75 mm) on all areas except slopes steeper than two (2) horizontally to one (1) vertically using discs, harrows, tiller rakes to produce fine grade. On slopes steeper than 2:1, use cultivating equipment in general direction at right angles to the direction of surface drainage wherever practical.

3.3 FERTILIZING

A. Fertilizer shall be applied to a properly prepared soil bed prior to seeding with a mechanical spreader and thoroughly mixed in by means of a meeker harrow, or weighted chain link fence, or other approved method in top three (3) inches. Fertilizer must be dry and free flowing when applied.

B. Apply after smooth raking of topsoil and prior to roller compaction.

C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.

D. Mix thoroughly into upper two (2) inches (50 mm) of topsoil.

E. Lightly water to aid the dissipation of fertilizer.

3.4 SEEDING

A. Apply seed at a rate determined by the State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest edition and addenda evenly in two intersecting directions. Rake in lightly.

B. Do not seed areas in excess of that which can be mulched on same day.

C. Planting Season shall be determined by the State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest edition and addenda.

D. Do not sow immediately following rain, when ground is too dry, or during windy periods or when ground temperature remains lower than 50 degrees Fahrenheit (10 degrees Celsius).

E. Roll seeded area with roller not exceeding 112 lbs (50 Kg).

F. Immediately following seeding and compacting, apply mulch to a thickness of 1/8 inches (3 mm). Maintain clear of shrubs and trees.

G. Apply water with a fine spray immediately after each area has been mulched. Saturate to four (4) inches (100 mm) of soil.

H. Following germination, immediately re-seed areas without germinated seeds that are larger than four (4) by four (4) inches (100 by 100 mm).

3.5 SEED PROTECTION ON STEEP SLOPES

A. Cover seeded slopes where grade is 3:1 h/v and steeper with erosion fabric. Roll fabric onto slopes without stretching or pulling.

B. Lay fabric smoothly on surface, bury top end of each section in six (6) inch (150 mm) deep excavated topsoil trench. Provide 12 inch (300 mm) overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.

C. Secure outside edges and overlaps at 36 inch (900 mm) intervals with stakes.

D. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.

E. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum six (6) inches (150 mm).

3.6 WATERING

A. Water all seeded areas as necessary to assure that areas are uniformly moistened and maintained in a moist condition until the Work has been approved by the Engineer and responsibility for maintenance accepted by the Owner.

3.7 MAINTENANCE

A. Neatly trim edges and hand clip where necessary.

B. Roll surface to remove minor depressions or irregularities.

C. Remedy damage resulting from improper use of herbicides.

D. Immediately reseed areas which show bare spots.

E. Protect seeded areas with warning signs during maintenance period.

3.8 ESTABLISHMENT, REPLACEMENT AND ACCEPTANCE OF WORK

A. Contractor immediately replace any seed which fails to become established during the first 30 days at no additional cost to the Owner.

B. In seeded areas, it is the Contractor's responsibility to provide 70% seed germination (vegetative cover) within 30 days of installation. The areas not meeting 70% germination shall be corrected until accepted by the Owner at no additional cost to the Owner.

C. For a period of 30 days after Owner acceptance, the Contractor shall replace at no cost to the Owner any and all seeded areas not meeting the specifications.

3.9 CLEAN-UP

A. Promptly remove all soil, mulch, or similar material brought into paved areas by work operations, keeping these areas clean at all times. Upon completion of seeding, dispose of off site excess soil, stones, and debris not previously cleaned up.

B. Restore all ground areas disturbed as a result of seeding operations to their original condition or to the desired new appearance.

END OF SECTION 329200

SECTION 33 40 00

STORM DRAINAGE UTILITIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Conditions of the Contract (General, Supplementary and Other Conditions), the General Requirements (Sections of Division One) and the Drawings Apply to the Work of this Section.

B. Site storm drainage construction including all pipes, fittings, attachments, and connections needed for a complete and proper installation.

C. Storm Drainage Pipe for Surface, or a Combination of Surface and Subsurface Water.

D. Storm Manholes, Catch Basins, Grates and Frames.

E. Protection of Completed System Against Infiltration During Subsequent Construction Activities.

1.2 RELATED SECTIONS

A. Section 014000 – Quality Requirements.

B. Section 310000 – Earthwork.

C. Section 312333 – Trench Excavation and Backfill for Utilities.

1.3 RELATED DOCUMENTS

A. State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest Edition and Addenda.

B. CEAM Specifications, latest edition.

1.4 QUALITY ASSURANCE

A. Perform work in accordance with State and Local Governmental Unit standards.

B. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for the proper performance of the work of this section.

C. Accurately record location of utilities remaining, rerouted utilities and new utilities by horizontal dimensions, elevations or inverts and slope gradients.

D. Contractor shall coordinate closely with Owner during installation of storm piping in the existing loading dock area so as to have as minimal disruption to Owner’s operations as possible.

1.5 SITE CONDITIONS

A. Monuments: Maintain benchmarks, monuments, and other reference points. If disturbed or destroyed, have replaced or relocated by a registered land surveyor at the Contractor's expense.

1.6 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Product Data: Within 15 calendar days: Submit manufacturer’s data for product characteristics, valves, fittings, insulation jointing materials, and all other materials required for a complete installation and the following:

1. List of materials and suppliers.

2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.

C. Manufacturer's recommended installation procedures.

D. Shop Drawings.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, handle and protect products to site under provisions of Section 016000.

B. Deliver new packaged materials, well marked and identified, clean, dry and protected against dampness, freezing and damage.

C. Storage of Materials:

1. Store in unit packages as received from manufacturer until just prior to use.

2. Stack units in such manner as to prevent deformation to pipe barrel and bells.

3. Protect from direct sunlight by covering with opaque material if storage period will exceed six (6) weeks.

D. Avoid severe impact blows, gouging or cutting by metal surfaces or rocks.

E. Except as otherwise approved by the Engineer, determine and comply with manufacturer's recommendations and standard of good practice regarding product handling, storage, and protection of materials that are part of this Section.

F. The Engineer may reject as noncomplying such material and products that do not bear identification satisfactory to the Engineer as to manufacturer, grade, quality and other pertinent information.

G. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the Owner.

H. In event of damage, promptly make replacements and repairs to the approval of the Engineer and at no additional cost to the Owner.

I. Deliver products to the job site in their manufacturer's original container, with labels intact and legible.

1. Maintain packaged materials with seals unbroken and labels intact until time of use.

J. Promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the Owner.

1.8 FIELD MEASUREMENTS

A. Verify actual locations of storm drainage systems with other construction to which storm drainage systems must fit by accurate field measurements before installation. Coordinate installation schedule with construction progress to avoid delay of Work.

1.7 PROJECT RECORD DOCUMENTS

A. Submit documents under provisions of Section 013300.

B. Record location of pipe runs, connections, rim and invert elevations.

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.9 PROTECTION OF OTHER UTILITIES

A. Location:

1. Contractor shall call for underground utility locations (for public and private Utilities) prior to Construction.

2. Approximate location of certain known underground lines is shown.

3. Existing small lines not shown.

4. Locate small and other possible utility lines using electronic pipe finder, or other approved method.

5. Excavate and expose existing underground utilities ahead of trenching operations.

B. Repair or replace any damaged utility line or structure at no additional cost to Owner.

1.10 CONFLICTING UTILITIES

A. Remove and/or relay conflicting utilities, when so directed by the Engineer, at the expense of the Owner.

B. When alterations to existing utilities are shown to avoid conflicts, make alterations at no cost to Owner.

1.11 WARRANTY

A. Provide one year written warranty.

B. Warranty: State that all materials and workmanship provided are guaranteed against defects after completion and final acceptance of the Work. Defects due to faulty materials or workmanship developed during the guarantee period shall be satisfactorily repaired or replaced at no additional expense to the Owner.

PART 2 - PRODUCTS

2.1 PIPE AND MATERIALS

A. General:

1. Pipe, fittings, manholes and appurtenances shall be new materials and shall be of the type, size, strength, and quality as shown on the Drawings and as specified in this Section.
2. Materials required for this Work shall be new materials conforming to requirements of the referenced specification for the class, kind, type, size, grade and other details indicated on the Drawings.
3. Contractor may be requested to secure and deliver to Engineer a written statement from the manufacturer assuring the quality and compliance to the applicable specifications of all materials furnished and installed under this Contract. This shall not relieve the Contractor of responsibilities regarding quality of materials furnished and installed.
4. Wherever connection of dissimilar materials or design is required, the method of joining and any special fittings employed shall be subject to approval by the Engineer.

B. Reinforced Concrete Pipe (RCP): Pipe shall meet the requirements of ASTM C76 for Classification as called out on the Drawings. Sizes shall be as indicated on the Drawings. Provide pipe with joints designed for flexible watertight gaskets.

1. Gaskets: O-Ring rubber complying with ASTM C443; but with shore durometer hardness type A, 40-55, in lieu of the hardness specified, or preformed plastic gaskets complying with AASHTO Designation M-198 for Type B, Flexible Plastic Gasket.
2. Provide gasket and jointing materials with not more than one splice.

C. Coarse Filter Aggregate: Materials shall conform to State Standards.

D. Concrete: Concrete shall be minimum 4,000 psi (28 MPa) air-entrained concrete, meeting requirements of ACI 301.

I. Reinforced Concrete Sewer Pipe (RCP) and End Sections:

1. Reinforced concrete sewer pipe and end sections shall conform to State standards and shall have rubber gasket joints. The class of pipe shall be as indicated on the Drawings.
2. End sections shall be provided with a galvanized trash guard in accordance with Detail Drawings which shall be incidental to the cost of the end sections. End sections shall be tied back a minimum of three pipe joints with approved pipe ties.
3. The Drawings indicate various lengths of storm sewer. These dimensions are from end to end of pipe, and include special sections.

E. Perforated Draintile: As indicated on the Drawings.

2.2 DRAINAGE STRUCTURES

A. General:

1. Construct manholes, inlets, and junction structures of precast reinforced concrete, complete with metal frames and covers or gratings, and with fixed ladder rungs where indicated on the Drawings or required by codes.
2. Provide resilient rubber gaskets for all pipe connections.
3. Individual wall-mounted aluminum, plastic-covered steel, or galvanized steel rungs are acceptable.

B. Materials:

1. Concrete: 4000 psi (28 MPa).
2. Connections to other drainage structures, and manhole construction:
   a. Provide resilient rubber joints at all connections to manholes and catch basins.

C. Precast drop inlets, catch basins, curb inlets, etc., shall be as manufactured by an approved Local manufacturer and conform to the following:

1. Comply with ASTM C478, precast rings and cone sections.
2. Fully bed the joints between precast concrete risers and tops in mortar, and smooth both interior and exterior surfaces uniformly.
3. Provide reinforced and bottom open for field pouring to insure slope through structure.
4. Standard manholes and catch basins shall conform to requirements as shown on the Drawings and as specified.

D. Provide gray iron castings, complying with ASTM A48, Class 30 iron, or an approved equal by the Engineer. (Varies per project)

1. Patterns and weights shall be as indicated on the Contract Drawings.
2. Storm Sewer Manholes: Neenah Foundry Co. with center pick hole and "Storm Sewer" imprinted on the cover.
3. Catch Basins: Neenah Foundry Co. as shown on Drawings.

2.3 MANHOLES

A. Use Precast Concrete Manholes:

1. Provide reinforced precast concrete ring and eccentric cone sections complying with ASTM C478 and the following.
2. Use Portland cement complying with ASTM C150, Type II.
3. Cast ladder rungs into the units.
4. Provide tongue and groove or o-ring rubber gasketed joints.
5. Use vulcanized butyl rubber sealant with tongue and groove joints.

6. Provide flat slab tops where manhole depth is less than four (4) feet zero (0) inches (1200 mm).

B. Steps:

1. Steps shall be based on the recommendations of the State Department of Transportation (DOT) Standard Specifications for Highway Construction, latest edition and addenda.

2. Provide steps having non-skid top surfaces, safety stops at each end, minimum width of 10 inches (250 mm) and not less than five (5) inches (125 mm) projection from wall.

3. Aluminum steps shall support 1000 pound load at center with no deformation, coat embedded ends with bituminous paint.

4. Provide polypropylene plastic reinforced with 3/8 inch (9 mm) diameter steel rod, M.S.A. Industries, Inc. Model PS-K, or equal.

C. Frames and Covers:

1. Provide gray iron castings, complying with ASTM A48, Class 30 iron, or an approved equal by the Engineer.

2. Machine all bearing surfaces.

3. Provide frames weighing not less than 208 lbs. (94 Kg) with inside opening between 21 inches and 27 inches (530 and 680 mm).

4. Provide circular cover with two (2) “pick” holes and weighing not less than 120 lbs. (54 Kg).

5. Covers to have the words “STORM SEWER” cast in the metal.

6. Coat frames and covers with two shop coats of bituminous paint.

7. Provide watertight covers, where indicated, conforming to above requirements and with frame tapped for four bolts, countersunk in cover.

a. Provide rubber gasket between frame and cover.

2.4 OTHER MATERIALS

A. Riprap - Filter Blanket

1. See Erosion and Sediment Control Section and Drawings.

B. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

C. See Drawings for details on draintile cleanouts.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 LAYING OUT WORK

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected

B. Provide all materials, labor, instruments, etc. required to lay out Work.

C. Exercise proper precaution to verify figures on the drawings prior to laying out Work. Contractor will be held responsible for any errors therein that otherwise might have been avoided.

D. Promptly inform Engineer of errors or discrepancies found, in order that proper corrections may be made.

3.3 INSTALLATION OF STORM DRAINAGE

A. Trenching, Backfilling and Compacting:

1. Trenching and backfilling shall be constructed in accordance with Section 312333 - Trench Excavation and Backfill for Utilities.

B. Movement of Construction Machinery:

1. Use means necessary to avoid displacement of, and injury to, pipe and structures while compacting by rolling or operating equipment parallel to the pipe.

2. Movement of construction machinery over a culvert or storm drain at any stage of construction is solely at the Contractor's risk.

C. Installing Piping and Appurtenances:

1. Install piping in accordance with governing authorities having jurisdiction, except where more stringent requirements are indicated.

2. Inspect piping before installation to detect apparent defects. Mark defective materials with white paint and promptly remove from site.

3. Provide and use the proper implements, tools, and facilities for the safe and convenient prosecution of the Work.

4. Unload and distribute materials at site carefully to prevent materials from being damaged, minimize handling, and not hamper construction activities. In no case shall materials be thrown or dumped from truck.

5. Lower pipe into trench carefully to prevent damage to pipe and protective coatings and linings. Under no circumstances shall pipe be dumped into trench.

D. Immediately before placement, the joint surfaces of each pipe section and fitting shall be inspected for the presence of foreign matter, coating blisters, rough edges and projections, and any other imperfections so detected shall be corrected by cleaning, trimming or repair as required.

E. Pipe shall be laid using grade boards, furnished and set by the Contractor according to the established grade stakes. No pipe shall be laid unless there is a minimum of four (4) grade boards set to check the proper grade and alignment ahead. Provide and use a suitable grade rod to insure the proper grade of the pipe. Grade boards shall be no more than 25 feet apart. Laser equipment may be used in lieu of grade boards and strings to set pipe grade and alignment.

F. At the time of pipe placement, the bedding conditions shall be such as to provide uniform and continuous support for the pipe between bell holes. Bell holes shall be excavated as necessary to make the joint connections, but they shall be no larger than would be adequate. Bell-and-spigot pipe shall be laid with the bell ends facing upgrade and the laying shall start at the downgrade end and precede upgrade.

G. As each length of bell and spigot pipe is placed inlaying position, the spigot end shall be centered in the bell and the pipe forced hole and brought to correct line and grade. The pipe shall be secured in place with approved backfill material, which shall be thoroughly compacted around the pipe. The joint areas shall remain exposed and precautions shall be taken to prevent the soil from entering the joint space, until the joint seal is affected.

H. Place pipe on minimum four (4) inch (100 mm) deep bed of filter aggregate specified.

I. Piping not installed at invert elevations on Drawings, shall be removed and relaid at Contractor's expense.

J. Joint Adapters: Make joints between different types of pipe with standard manufactured adapters and fittings intended for that purpose.

K. Interior Inspection: Inspect piping to determine whether line displacement or other damage has occurred.

1. Make inspections after lines between manholes, or manhole locations, have been installed and approximately two (2) feet (600 mm) of backfill is in place, and again at completion of project.

2. If inspection indicates poor alignment, debris, displaced pipe, infiltration or other defects, correct such defects, and reinspect.

L. Closing Abandoned Utilities: Close open ends of abandoned underground utilities which are indicated to remain in place. Provide sufficiently strong closures to withstand hydro-static or earth pressure which may result after ends of abandoned utilities have been closed.

1. Close open ends of concrete or masonry utilities with not less than eight (8) inches (200 mm) thick brick masonry bulkheads.

2. Close open ends of piping with threaded metal caps, plastic plugs, or other acceptable methods suitable for size and type of material being closed. Wood plugs are not acceptable.

M. Cleaning Piping:

1. Clear interior of piping of dirt and other superfluous material as work progresses. Maintain swab or drag in line and pull past each joint as it is completed.
2. In large, accessible piping, brushes and brooms may be used for cleaning.
3. Place plugs in ends of uncompleted piping at end of day or whenever work stops.
4. Flush lines between manholes if required to remove collected debris.

N. When existing utility structures or branch connections leading to main sewers or to main drains, present obstructions to the grade and alignment of the pipe, they shall be permanently supported, removed, relocated or reconstructed.

O. When water main, water services and sewer services, whether lowered or existing, are in danger of freezing due to proximity of storm sewers, catch basin leads, or storm sewer structures, the Engineer may direct the placement of insulation between the storm sewer and the water main or service pipe. See Drawings.

P. Openings along the line of the storm sewer shall be securely closed, and at the suspension of Work at any time, suitable stoppers shall be placed to prevent earth or any substance from entering the storm sewer. If water is present in the trench, the seals shall remain in place until the trench is completely dry.

3.4 MANHOLE AND PRECAST STRUCTURES

A. Set bases level so that walls will be plumb.

B. Apply joint sealer, or ring gasket to wall section(s), set firmly in place to assure watertight joints.

C. Form manhole invert channels directly in the concrete of the manhole base, with mortar, or by laying full section sewer pipe through the manhole and breaking out the top half after surrounding concrete has hardened. Smooth the floor of the manhole outside the channels and slope toward the channels at not less than one (1) inch per foot (83 mm per meter) and not more than two (2) inches per foot (167 mm per meter).

1. Shape the invert channels to be smooth and semicircular, conforming to the inside of the adjacent sewer section.
2. Make changes in direction of flow with a smooth curve of as large a radius as the size of the manhole will permit.
3. Make changes in size and grade of channels smoothly and evenly.
4. Slope invert uniformly from invert of inlet to invert of outlet.

3.5 SUB-SURFACE DRAIN (DRAINTILE)

A. Sub-surface drain construction shall be performed in accordance with the provisions of State standards, except as modified below:

1. The 10” HDPE pipe shall be installed at the locations indicated on the Drawings, or as determined at the time of the construction operations to drain the filtration area aggregate.
2. The pipe shall have AASHTO Class II perforations.
3. To prevent infiltration of soil and aggregate into the pipe, the perforated pipe shall have an ADS Sock/Drain guard installed on the exterior, the openings in which will be compatible with the gradation of the backfill material.

3.6 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under the provisions of Section 014000.
   1. Provide personnel and equipment necessary, and perform tests required to demonstrate that the work of this Section has been completed in accordance with the specified requirements.
   2. Joints within the building area and outside the building area within ten feet of exterior walls or faces of the building or within ten feet of water services lines must be tested in accordance with Minnesota Plumbing code rules 4715.2820.
   3. Contractor shall replace or repair joints found to be faulty at no additional cost the Owner. Repeat the test and repair cycle until joints are demonstrated to meet the specified requirements.

A. General:
   1. All pipe will be visually inspected.
   2. All visible leaks shall be repaired.
   3. Broken or cracked pipe, mislaid pipe and other defects shall be corrected.
   4. All repairs, relaying of sewers, etc. required to bring the sewers to specified status shall be made at no additional cost to the Owner.

B. Observation:
   1. Clean and prepare for observation each block or section of sewer upon completion, or at such other time as the Engineer may schedule.

C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no additional cost to the Owner.

5.3 ADJUSTING AND CLEANING

A. Correcting Deficiencies: Correct imperfections and irregularities in work at no expense to Owner.

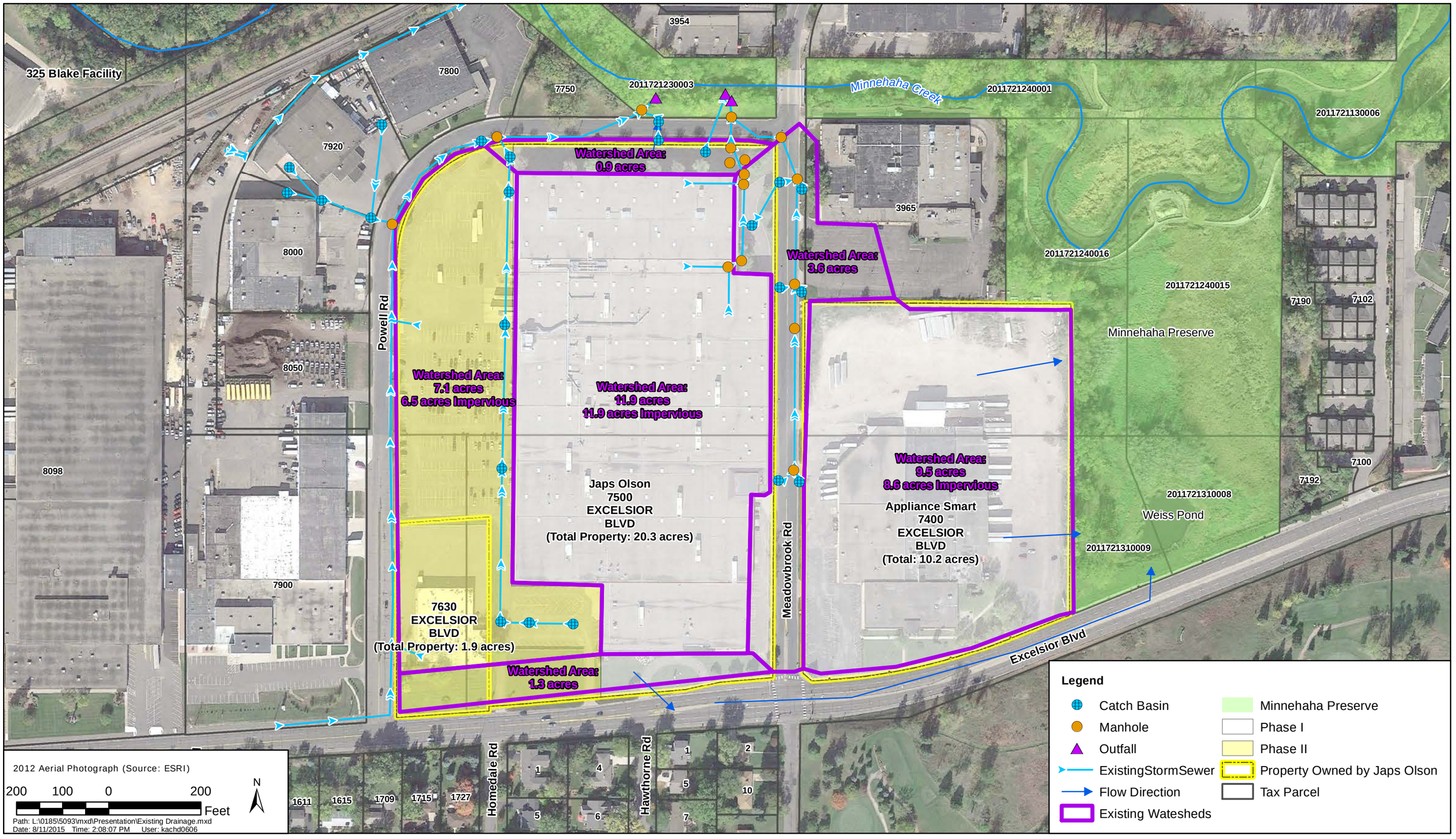
B. Cleaning Drains: Drains shall be free of silt, debris, and other obstructions at time of final acceptance.

C. Cleaning Site: Remove excess earth, excess construction materials, construction equipment, and construction debris which is related to this work from site at completion of work.

5.4 PROTECTION

A. General Requirements: Protect storm drainage system from damage and construction operations until date of Substantial Completion.

END OF SECTION 334000



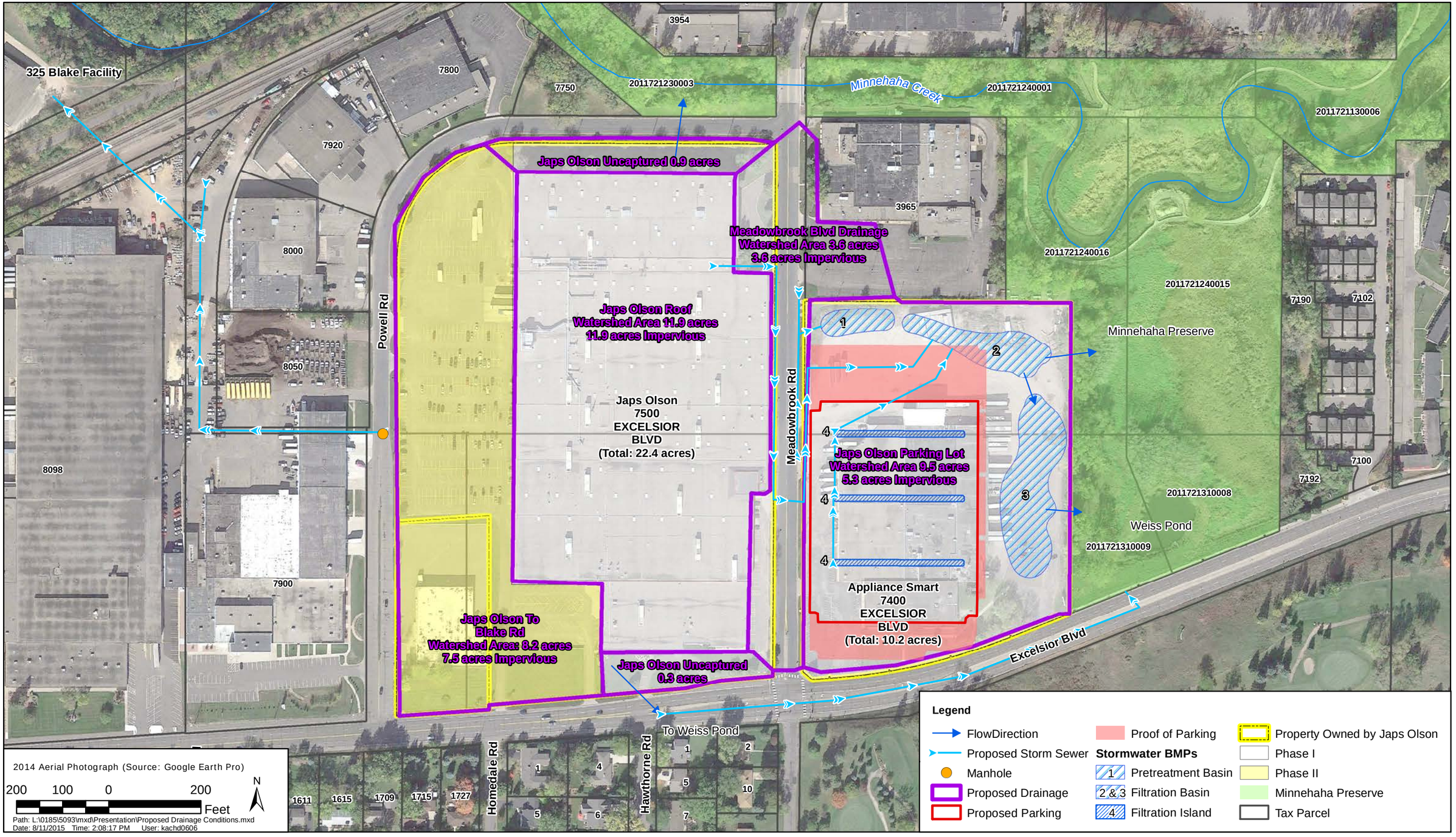
MINNEHAHA CREEK WATERSHED DISTRICT

Existing Drainage Conditions

WENCK ASSOCIATES
Responsive partner. Exceptional outcomes.

AUG 2015

Figure 3



MINNEHAHA CREEK WATERSHED DISTRICT

Proposed Drainage Conditions

WENCK ASSOCIATES
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AUG 2015

Figure 4

STORMWATER MANAGEMENT AGREEMENT

Minnehaha Creek Watershed District, City of St. Louis Park and Japs-Olson Company

This Stormwater Management Agreement ("**Agreement**") is made by and among the Minnehaha Creek Watershed District, a watershed district with purposes and powers as set forth at Minnesota Statutes Chapters 103B and 103D ("**District**"); the City of St. Louis Park, a home rule charter city of the State of Minnesota ("**City**"); and Japs-Olson Company, a Delaware corporation ("**Japs-Olson**") (together, "the Parties").

Article 1 - Recitals

1.01 These Recitals are incorporated into the Agreement and are a binding part thereof.

1.02 Japs-Olson owns property within the City of St. Louis Park consisting of seven contiguous parcels of record, as follows:

Address	Property Identification Number
3964 Meadowbrook Road	2011721230012
3985 Meadowbrook Road	2011721240017
7400 Excelsior Boulevard	2011721310010
7500 Excelsior Boulevard	2011721320001
7630 Excelsior Boulevard	2011721320002
No address	2011721320003
7630 Excelsior Boulevard	2011721320004

1.03 The District owns property within the City of St. Louis Park consisting of four contiguous parcels abutting the Japs-Olson properties, as follows:

Address	Property Identification Number
7200 Excelsior Boulevard	2011721240015
7250 Excelsior Boulevard	2011721240016
7202 Excelsior Boulevard	2011721310008
7252 Excelsior Boulevard	2011721310009

1.04 The contiguous property of Japs-Olson and of the District is riparian to Minnehaha Creek. Minnehaha Creek, and Lake Hiawatha through which it flows downstream, are public waters subject to a Total Maximum Daily Load (TMDL) under state law for failure to meet state water quality standards for nutrients and bacteria. The District, in cooperation with the City, has expended public funds to restore creek, wetland and riparian resources on its property; to construct public facilities to provide water quality treatment to stormwater runoff before it discharges into the creek; and to construct trails, boardwalk and related public educational and recreational assets.

1.05 Japs-Olson intends to expand its commercial facility located on its above-listed properties (the "**Project**"). The Project will occur, generally, in two phases. **Phase 1**, generally, will involve the demolition of existing structures on the eastern part of its property, construction of parking, and construction of stormwater management facilities consisting of parking lot filtration medians and a filtration basin with associated pretreatment basins. **Phase 2**, generally, will involve the demolition of parking on the western part of its property and the expansion of its buildings. Japs-Olson plans to construct Phase 1 in 2015 and Phase 2 in 2016.

1.06 Pursuant to Minnesota Statutes §103D.341, the District has adopted and implements rules and permitting requirements governing land disturbance. Japs-Olson applied to the District for erosion control and stormwater management permits for the Project. District Permit No. 15-413 was approved by the District Board of Managers on August 13, 2015. This Agreement is a condition of permit issuance.

1.07 The Project also is subject to City permits and approvals. A conditional use permit for Phase 1 has been approved and conditions for issuance are expected to be met shortly. **[INSERT ADDITIONAL TEXT ABOUT CITY REGULATORY REQUIREMENTS/STATUS]**

1.08 In order to meet District and City requirements for management of stormwater from its redevelopment, Japs-Olson must adequately capture and treat two distinct catchments from its expanded facility, one flowing east toward Meadowbrook Road, and one flowing west toward Powell Road. Japs-Olson's preferred method of treating the eastern catchment is to construct: (a) a filtration basin with a pretreatment basin on its property east of Meadowbrook Road (together, "**Eastern Basin**"), discharging to Minnehaha Creek; and (b) parking lot filtration medians, with each installation discharging, after treatment, to the Eastern Basin. Its preferred method of treating the western catchment is to capture the runoff and transport it by pipe to the Powell Road right-of-way where it will be connected to the City of Hopkins stormsewer system, from which it will be conveyed to a stormwater management basin that the District intends to construct on its property located at 325 Blake Road, Hopkins ("**Western Basin**"), and which the District intends to be operational in 2018.

1.09 The District's water resource goals will benefit by its taking ownership of the Eastern Basin and the land underlying and surrounding it **("Basin Lot")**, in the following ways:

a. It can expand the Japs-Olson design to treat additional urban runoff from Meadowbrook Road and other commercial property that presently is discharged to Minnehaha Creek without treatment.

b. It can enhance the basin design to improve its wetland and ecologic qualities and integrate the site into the adjacent ecologically restored area on the District property.

c. By assuming maintenance responsibility, it can assure timely maintenance.

d. It can extend public educational and recreational assets onto the land.

1.10 The Parties have assessed the value of considerations to be exchanged under this Agreement and each determines that the exchange of consideration is fair and beneficial to its goals. The exchange is as follows:

a. Japs-Olson will (i) adjust the grade of a section of City stormsewer within Meadowbrook Road and construct an extension of the stormsewer, east beneath its property, to the Eastern Basin; (ii) construct the Eastern Basin to an expanded design approved by the District; (iii) convey to the City an easement, which shall include appropriate indemnifications from City, to maintain the extension stormsewer beneath its property; (iv) subdivide the land containing the Eastern Basin to create the Basin Lot; and (v) convey the Basin Lot to the District in fee.

b. The District will: (i) accept Japs-Olson stormwater runoff in both the Western and Eastern Basins in accordance with plans approved as a part of District Permit No. 15-413, on an ongoing basis, for as long as Japs-Olson approvals require; and (ii) maintain those basins to meet all regulatory requirements to which the Project is subject.

c. The City will: (i) accept a grade adjustment in its Meadowbrook Road stormsewer; and (ii) take ownership of the extension stormsewer extending from Meadowbrook Road to the outfall at the Eastern Basin.

Accordingly, the Parties agree that this Agreement involves an exchange of valuable consideration and is legally binding.

1.11 Pursuant to Minnesota Statutes §103B.251, the District cannot commit levied funds to implement its obligations under this Agreement until the District Board of Managers, after due notice and public hearing, has determined that statutory criteria are met for the District's expenditure of funds obtained by levy. If the Board decides not to authorize the expenditure of funds, in order to allow Japs-Olson to proceed with its redevelopment, this Agreement at paragraph 3.02 stipulates that Japs-Olson may use the Western Basin in exchange for a fixed fee payment to the District.

Article 2 - Japs-Olson Construction

2.01 The following plans and specifications are attached hereto and incorporated herein:

a. **Attachment A**: Eastern Basin.

b. **Attachment B**: Adjusting grade of City stormsewer pipe within Meadowbrook Road and extending a new section of pipe to an outfall at the Eastern Basin.

c. **Attachment C**: Connecting Japs-Olson stormwater collection for the western part of the Japs-Olson property to City of Hopkins stormsewer within Powell Road.

These plans and specifications are a part of the District-approved plans incorporated into District Permit No. 15-413.

2.02 Japs-Olson is responsible to obtain all approvals required for the Project, including those of the District and City. The approvals for which Japs-Olson is responsible include, but are not limited to, the following:

a. Approval from the City of Hopkins of the Powell Road connection to the Hopkins stormsewer ("**Powell Connection**") and the work in right-of-way to construct the connection.

b. A permit to work in right-of-way and any other approval required from the City to alter the grade of City stormsewer pipe within Meadowbrook Road and install an extension of that stormsewer to the Eastern Basin ("**Meadowbrook Connection**").

c. City acceptance of ownership of the stormsewer extension to the Eastern Basin to the point of outfall.

d. Completion of City boundary change with City of Hopkins to incorporate all Project lands within City boundaries.

The District represents that no approval other than District Permit No. 15-413 is required for the Project as understood. The City reserves all judgment and discretion that it possesses under approvals not yet issued, but represents that at a staff level of review it is not aware of an issue that would jeopardize or delay issuance of a required approval. The City will process all remaining regulatory approvals in good faith and without undue delay.

2.03 The District and the City recognize that the District does not expect the Western Basin to be operational until 2018, which may be 12 to 18 months after Phase 2 work. Each has considered this fact within the framework of its regulatory requirements and, as set forth in District Permit No. 15-413 and **[CITY REGULATORY APPROVAL],** has determined that this does not prevent its requirements from being met.

2.04 The Parties will cooperate diligently and in good faith to subdivide one or more Japs-Olson lots of record in order to establish the Basin Lot, with boundaries materially as shown on **Attachment D**, attached hereto and incorporated herein. The Parties will consult in good faith as to whether the Basin Lot will be established as a lot of record or will be combined with one or more existing lots of record owned by the District. Either of these is acceptable to the District. The City will process the subdivision efficiently and promptly and will waive all fees that it is within the authority of the decision maker to waive. Japs-Olson will obtain required surveys and plats and bear all costs and fees associated with the subdivision.

2.05 Japs-Olson and the District will cooperate diligently and in good faith to effect the fee conveyance by limited warranty deed of the Basin Lot in accordance with 2.08.c. Within 10 business days of the completion of subdivision per paragraph 2.04, Japs-Olson and the District will execute a purchase agreement materially equivalent to **Attachment E (the "Purchase Agreement")**, attached hereto and incorporated herein. Among other terms, the purchase agreement provides for standard title and environmental contingencies and Japs-Olson indemnification of the District with respect to environmental and regulatory risks associated with the property in question. Indemnification will extend to all costs, damages and liabilities arising from Japs-Olson construction of the Project. Time is of the essence so that the conveyance can occur at the time contemplated by paragraph **2.09**, below.

2.06 Japs-Olson will complete construction of the Eastern Basin, the Meadowbrook Connection and the Powell Connection in accordance with Exhibits A through C, including but not limited to

rough and fine grading, structures, seeding and other site stabilization as set forth in those exhibits. Japs-Olson will be responsible for all fill balance associated with basin excavation. However, if there is excess fill requiring offsite disposal, Japs-Olson may consult with the District to explore excess soil disposal on District property. Any such disposal will be in accordance with term agreed to by the parties, including Japs-Olson indemnification for environmental and regulatory risk and an appropriate sharing of Project cost savings.

2.07 In its contract documents, Japs-Olson will explicitly provide for the following:

a. The District will be named an intended beneficiary.

b. The contractor will indemnify the District and hold it harmless for all claims, costs, damages and liabilities arising out of the negligence, willful act or contract breach of the contractor or a subcontractor.

c. The contractor will maintain commercial general liability (CGL) insurance on an occurrence basis with a limit of at least $1.5 million for work and completed operations, and including contract liability coverage.

d. The District will be named as an additional insured under the contractor's CGL policy, with primary and non-contributory coverage, for work and completed operations.

e. The contractor will conform operations to all applicable site contingency plans and other terms that are conditions of any applicable Minnesota Pollution Control Agency liability protection letters.

2.08 The District and the City may observe all construction encompassed by Attachments A, B and C. Japs-Olson will notify the District of all pre-construction and construction meetings, which the District may attend. The District will not direct the contractor.

2.09 Subject to Force Majeure (as defined in 9.09 below), Japs-Olson will exercise commercially reasonable efforts to substantially complete the work specified in Attachments A and B, above, by January 31, 2016. On certification by the Japs-Olson engineer that the work encompassed by Attachments A and B is complete and City acceptance of the Meadowbrook Connection, the District and Japs Olson will close on the transaction contemplated by the Purchase Agreement and pursuant to the terms thereof; ownership of all installed stormsewer from Meadowbrook Road to the outfall at the Eastern Basin, to the point indicated on Attachment B, will vest in the City; and Japs-Olson will:

a. Provide the District and City as-built drawings signed by a professional engineer and demonstrating conformance to Attachments A and B.

b. Execute a perpetual easement to the City for the Meadowbrook Connection in a form substantively identical to **Attachment F**, attached hereto and incorporated herein.

c. Convey to the District a limited warranty deed for the Basin Lot, reserving the right to drain stormwater to the basin in accordance with District Permit No. 15-413.

2.10 Japs-Olson may discharge to the Eastern Basin once its engineer has certified completion and the District notifies Japs-Olson that it is stabilized in accordance with the terms of District Permit No. 15-413.

Article 3 - Contingency if District Board of Managers Doesn't Authorize District Participation in the Project

3.01 The District will provide for notice and a public hearing for its participation in the Project pursuant to Minnesota Statutes §103B.251. After the hearing, the District Board of Managers will consider a resolution authorizing District participation in the Project pursuant to the criteria stated in that statute. The Board will act on such a resolution by September 10, 2015, absent information being brought to its attention during the public process that requires a delay in its decision.

3.02 If the District Board of Managers elects that the District not proceed with its participation in the Project, Japs-Olson will retain the right to direct its stormwater to the Western Basin in accordance with District Permit No. 15-413. When the District engineer has certified that the Western Basin is substantially complete and operational, the District will notify Japs-Olson. Japs-Olson may discharge stormwater from its property to the basin once it has paid the District the sum of $188,000 and the District has confirmed that the sum has been credited to the District's account.

3.03 If received information requires a delay in the Board's decision under paragraph **3.01**, above, the District and Japs-Olson will coordinate to determine the timing of work under Attachments A and B and other applicable deadlines set forth herein. The District will use all diligence to achieve prompt Board action on the resolution and Japs-Olson will make reasonable adjustments in the work progress to allow for a Board decision in advance of incurring contractor cost for work under Attachment A or B. If Japs-Olson, after notice to the District, thereafter incurs contractor cost for such work that is rendered unnecessary by a subsequent Board action not to proceed, the District will be responsible for such cost, as adequately documented.

Article 4 - Contingency if Japs-Olson Doesn't Proceed With Project

4.01 If Japs-Olson surrenders a required District or City approval, or such approval expires, in each case without any construction of hard surface that is jurisdictional under the approval, then the Parties will deem this Agreement rescinded.

4.02 If Japs-Olson surrenders a required District or City approval, or such approval expires, in each case after construction of hard surface that is jurisdictional under the approval, Japs-Olson will be responsible to achieve regulatory compliance with the District and City in their regulatory functions. If Japs-Olson repudiates or fails to fulfill any obligation under this Agreement, the District and the City will have remedies in contract pursuant to paragraph **9.02**, below.

4.03 Japs-Olson will be responsible to timely apply for extension of required approvals according to District and City regulations. Those regulations accommodate permit extensions consistent with the public interest that a development permit not have an indefinite term. Japs-Olson understands that delay results in opportunity cost to the District with respect to its use of its property and that the District may find undue delay not to be in the public interest. However, the

District will not deny a permit extension for the reason of this opportunity cost before the five-year expiration date of this Agreement stated at paragraph 9.08, below.

Article 5 - Contingency if District Doesn't Proceed to Closing Under Purchase Agreement

5.01 The District and Japs-Olson concur that a fee conveyance of the Basin Lot is the preferred approach. However, if the District, within its rights under the purchase agreement signed per paragraph 2.05, above, determines not to proceed to closing on the fee conveyance, Japs-Olson and the District will cooperate in good faith to promptly negotiate and execute a perpetual easement that allows the District to fulfill its rights and responsibilities under this Agreement with respect to the Eastern Basin and the Basin Lot. Such an easement will properly allocate to the District risks and liabilities with respect to any public facilities on the lot.

Article 6 - Contingency if Cost of Eastern Basin Increases

6.01 Japs-Olson will bid the Project so that the cost of Attachment A work is separately defined. If the contractor establishes the right to a price adjustment that increases the cost of Attachment A work, Japs-Olson and the District will consult in good faith as to a fair apportioning of that part of the adjusted price exceeding 125 percent of the bid price. As a prerequisite to consultation, Japs-Olson will give the District notice and fair opportunity to consult on any proposed change order.

6.02 If Japs-Olson elects not to complete the work absent District cost participation per paragraph 6.01, above, the District may proceed as though the District Board of Managers had elected not to proceed per paragraph 3.02, above, provided that it agrees to bear equally with Japs-Olson increased contract costs incurred by Japs-Olson for Attachment A work not necessary to construct the Eastern Basin solely to meet regulatory requirements for Japs-Olson's own hard surface. However, if the circumstance causing the price increase arises from an environmental or structural condition of the Japs-Olson property, the District need not bear a part of such costs.

Article 7 - Contingency if District Fails to Construct Western Basin or Construction is Delayed

7.01 If the Western Basin is not built or is materially delayed, the District is responsible to provide for alternative stormwater management in place of the Western Basin to meet stormwater requirements of Japs-Olson approvals for the Project. Japs-Olson and the City will cooperate in the District's identification and implementation of an alternative, but will not be required to bear additional cost beyond ordinary administrative costs.

Article 8 - Basin Maintenance

8.01 Once fee title to the Basin Lot is conveyed to the District per paragraph 2.09.c, Japs-Olson will not be responsible to maintain the basin or appurtenances. Except for infrastructure owned by the City, the District will be responsible to maintain the basin and appurtenances in accordance with requirements of Japs-Olson approvals for the Project. Japs-Olson will remain responsible to meet regulatory requirements to maintain the parking lot filtration medians and the structures conveying flow to the Eastern Basin, up to the property boundary.

8.02 Except for infrastructure owned by the City of Hopkins, the District will be responsible to maintain the Western Basin and appurtenances on the 325 Blake Road property in accordance with requirements of Japs-Olson approvals for the Project.

8.03 On certification of completion under paragraph **2.09**, Japs-Olson will deliver to the District copies of all approvals referenced under paragraphs **8.01** and **8.02**.

Article 9 - Miscellaneous

9.01 The Parties will continue to explore Powell Road relocation or abandonment and other means to further mutual goals in the Minnehaha Creek riparian area north of the Japs-Olson facility.

9.02 Only contract remedies are available for a breach of this Agreement. No party will be liable for special, indirect, incidental, punitive, exemplary or unforeseeable consequential damages arising out of or in connection with its respective obligations under this Agreement. Specific performance and *quantum meruit* explicitly are available remedies for the failure of a party to perform any obligation hereunder and do not require a demonstration that other remedies are inadequate. Remedies are non-exclusive.

9.03 Each party agrees to hold harmless, defend and indemnify the other parties from and against that portion of any and all liability, loss, claim, damage or expense (including reasonable attorney fees, costs and disbursements) that the indemnified party may incur as a result of the performance of this Agreement due to any negligent or willful act or omission of the indemnifying party or its breach of any specific contractual duty. Notwithstanding, this Agreement creates no right in and waives no immunity, defense or liability limit of the District or City as a public body under law, with respect to any third party or another party.

9.04 Each notice required under this Agreement will be in writing and made to the following representatives:

District:

Project Manager, Japs-Olson Project
Minnehaha Creek Watershed District
15320 Minnetonka Boulevard
Minnetonka MN 55345

City:

[INSERT]

Japs-Olson:

[INSERT]

Receipt of notice must be documented. Party representatives will confirm receipt promptly on request. Contact information will be kept current. A party may change its contact by written notice to the other parties.

9.05 An amendment to this Agreement must be in writing and executed by the Parties.

9.06 If Japs-Olson conveys any part of the property so as to shift, in whole or part, responsibility for compliance with District or City approvals for the Project, it will be responsible to timely request and obtain a transfer of approvals. Among other conditions of transfer, the District and City likely will require that the transferee accept an assignment of this Agreement, exclusive or non-exclusive, and of appropriate rights and responsibilities hereunder.

9.07 Venue for any action hereunder is Hennepin County, Minnesota.

9.08 This Agreement is effective on execution by the Parties and will remain in effect for five years from that date or until all obligations hereunder have been fulfilled, whichever sooner. Obligations under paragraph **9.03**, above, will survive expiration.

9.09 [Insert standard Force Majeure Clause.]

Agreeing to be bound,

MINNEHAHA CREEK WATERSHED DISTRICT

Approved for form and execution:

_____
MCWD Counsel

By _____ Date:
Sherry White, President

CITY OF ST. LOUIS PARK

[INSERT]

JAPS-OLSON COMPANY

[INSERT]

Attachments:

Attachment A: Plans & specifications, Eastern Basin
Attachment B: Plans & specifications, Meadowbrook Connection
Attachment C: Plans & specifications, Powell Connection
Attachment D: Boundaries, Basin Lot (legal description or delineation)
Attachment E: Purchase Agreement, Basin Lot
Attachment F: Easement, Meadowbrook Connection (to City)
Attachment G: Easement, Proof-of-Parking Area (to District)

St. Louis Park
MINNESOTA

Experience LIFE in the Park

August 10, 2015

Minnehaha Creek Watershed District
Attn: James Wisker
18202 Minnetonka Blvd
Minnetonka, MN 55345

Re: Letter of Support to MCWD for Japs Olson Stormwater Parntership

Dear Mr. Wisker

I am pleased to offer this letter supporting a public-private partnership between Japs Olson (Japs Olson) Company, the Minnehaha Creek Watershed District (MCWD) and the City of St. Louis Park (City), which will advance the strategic effort to reintegrate the Minnehaha Creek Greenway into the surrounding communities between Target-Knollwood to Meadowbrook Golf Course.

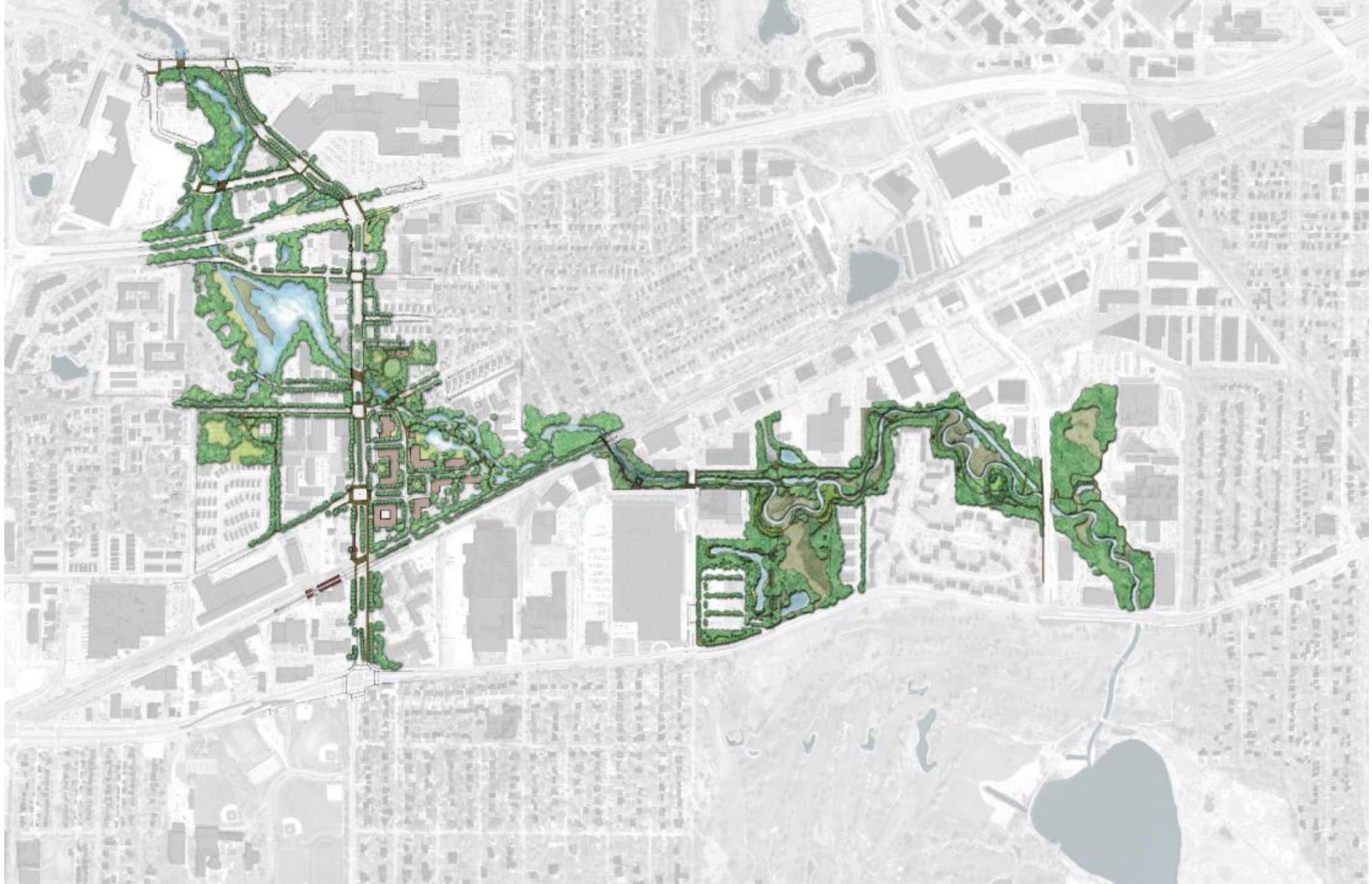
The City and the District's strong history of partnership most recently resulted in the successful opening of the Minnehaha Preserve which restores and connects over 30 acres of greenspace around Minnehaha Creek for public use. The proposed partnership between Japs Olson, MCWD and St. Louis Park will further expand on that initiative by joining over 3 acres of new public greenspace to the area, while managing over 30 acres of runoff from Japs Olson land and Meadowbrook Road. I am also excited to hear that the land Japs Olson plans on conveying to the District may provide yet another gateway into the recently restored section of Minnehaha Creek, through trail connections at Excelsior Boulevard.

The City understands and endorses the District's ongoing efforts to partner in our community to expand and connect the Minnehaha Creek Greenway. To facilitate the Japs Olson partnership the City will work closely with MCWD and Japs Olson on the applications including Right-Of-Way permissions allowing Japs Olson to construct the 4 acre Meadowbrook Road stormwater diversion, and the subdivision of land that Japs Olson plans to convey to the Minnehaha Creek Watershed District.

Thank you again for your valued partnership with the City of St. Louis Park.

Sincerely,

Tom Harmening
City Manager




PROPERTY LINE
MEADOWBROOK ROAD
0
20'
40'
80'