



Att-19A



# Western Washington University

## Stormwater Detention Facility Restoration

### PW656

#### GENERAL NOTES

1. GENERAL PROJECT REQUIREMENTS AND STANDARDS
  - A. PRIOR TO STARTING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE SURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS APPROVED BY ALL OF THE PERMITTING AUTHORITIES.
  - B. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS, THE CONTRACT DOCUMENTS, AND THE CURRENT WSDOT STANDARD SPECIFICATIONS. IN THE EVENT OF A CONFLICT THE MOST STRINGENT REQUIREMENTS SHALL APPLY.
  - C. THE CONTRACTOR SHALL CHECK AND VERIFY ALL EXISTING CONDITIONS BEFORE PROCEEDING WITH WORK. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE LOCATION OF UNDERGROUND PIPING AND STRUCTURES, UTILITIES, AND OTHER ABOVE AND BELOW GROUND SITE FEATURES TO ENSURE COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS. ANY CONFLICTS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
  - D. ALL WORK AND MATERIALS SHALL BE SUBJECT TO APPROVAL BY WESTERN WASHINGTON UNIVERSITY AND THE ENGINEER. REPRESENTATIVES FROM THE ENGINEER MUST INSPECT ALL WORK. THE CONTRACTOR SHALL CALL AT LEAST 24 HOURS IN ADVANCE TO SCHEDULE INSPECTIONS AS REQUIRED IN THE CONTRACT DOCUMENTS.
  - E. THE WESTERN WASHINGTON UNIVERSITY CAMPUS IS OCCUPIED. THERE ARE EXISTING UTILITIES ON THE PROPERTY THAT SHALL BE MAINTAINED WITHOUT DISRUPTION. THE CONTRACTOR SHALL PAY ALL COSTS OF REPAIRS IF DAMAGED. THE CONTRACTOR SHALL RESTORE ALL PRIVATE AND PUBLIC PROPERTY DISRUPTED BY THE PROJECT IMMEDIATELY AFTER CONSTRUCTION.
  - F. CONTRACTOR SHALL INFORM THE ENGINEER AND OBTAIN APPROVAL FROM WESTERN WASHINGTON UNIVERSITY OF ANY PROPOSED CHANGES IN PLAN PRIOR TO CONSTRUCTION OF THAT CHANGE. CONTRACTOR SHALL KEEP RECORD OF DEVIATIONS AND FORWARD TO THE ENGINEER.
  - G. THE LOCATIONS OF UNDERGROUND FACILITIES SHOWN ON THESE PLANS ARE BASED ON FIELD SURVEYS AND AS-BUILT RECORD DRAWINGS. IT SHALL BE THE CONTRACTOR'S FULL RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES AND OWNERS TO LOCATE THEIR FACILITIES PRIOR TO STARTING CONSTRUCTION. NO ADDITIONAL COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO THESE FACILITIES CAUSED BY HIS WORK FORCE. CALL 1-800-424-5565.
  - H. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
  - I. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED. ALL SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS 1-07.23(1) - TRAFFIC CONTROL SHALL APPLY.
  - J. AN APPROVED COPY OF THESE PLANS AND ALL REQUIRED PERMITS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
2. GENERAL DRAWING NOTES
  - A. DRAWING INTENT: THE INTENT OF THE DRAWINGS IS TO PROVIDE NECESSARY INFORMATION WITH MINIMAL REPETITION OR DUPLICATION. THE CONTRACTOR IS TO UTILIZE ALL DRAWINGS IN FORMULATING THE BID AND DETERMINING THE SCOPE OF WORK.
  - B. DRAWING OMISSIONS OR CONFLICTS: OMISSIONS OR CONFLICTS, BETWEEN VARIOUS ELEMENTS OF THE DRAWINGS AND/OR SPECIFICATIONS, SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER BY THE CONTRACTOR. THE OMISSION OR CONFLICT SHALL BE RESOLVED BY THE ENGINEER BEFORE PROCEEDING WITH THE WORK OR RELATED WORK.
  - C. TYPICAL DETAILS: TYPICAL DETAILS SHOWN ON THE DRAWINGS SHALL BE INCORPORATED AT ALL APPROPRIATE LOCATIONS WHETHER SPECIFICALLY REFERENCED AT EACH LOCATION OR NOT.
  - D. DRAWING SCALE: DO NOT SCALE DRAWINGS. IF DRAWINGS ARE LESS THAN 24" X 36" THEN THE PRINT HAS BEEN REDUCED.

#### PROJECT DIRECTORY

<b>PROJECT MANAGER:</b>	<b>CIVIL ENGINEER, PRIME CONSULTANT:</b>
SANDY FUGAWI, P.E., LEED+AP	DOUGLAS N. CAMPBELL, P.E.
MECHANICAL ENGINEER	ASSOCIATED PROJECT CONSULTANTS, INC., P.S.
WESTERN WASHINGTON UNIVERSITY	1401 ASTOR STREET
FACILITIES DEVELOPMENT	BELLINGHAM, WA 98225
	PHONE: 360-671-1146

#### SHEET INDEX

- C1.0 COVER SHEET AND GENERAL NOTES
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- C6.3 ALTERNATE 3: DETENTION VAULT WEST INLET
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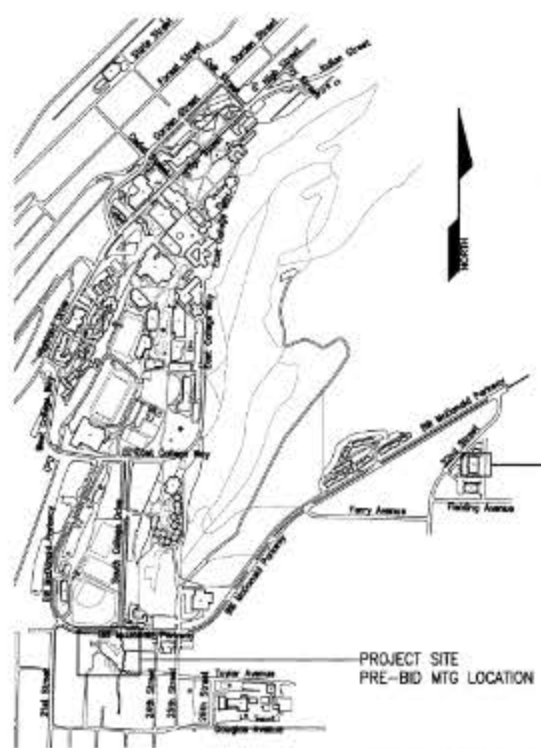
Client \_\_\_\_\_

Project Manager  
Facilities Development

Project Engineer  
Douglas N. Campbell, P.E.

Quality Assurance Coordinator \_\_\_\_\_

Assistant Director  
Facilities Development



**WESTERN WASHINGTON UNIVERSITY**

**PROJECT VICINITY MAP**

NOT TO SCALE  
BELLINGHAM, WASHINGTON

REV	DATE	DESCRIPTION	BY



PW656 - STORMWATER DETENTION FACILITY RESTORATION COVER SHEET AND GENERAL NOTES			
Checked By	Reviewed By	Approved By	Date
Designed By	Project Manager		

AS-BUILT - RECORD DRAWINGS  
OCTOBER 2012

Building Code	UT
Sheet #	C1.0
Job Number	PW656
Model Number	N4809

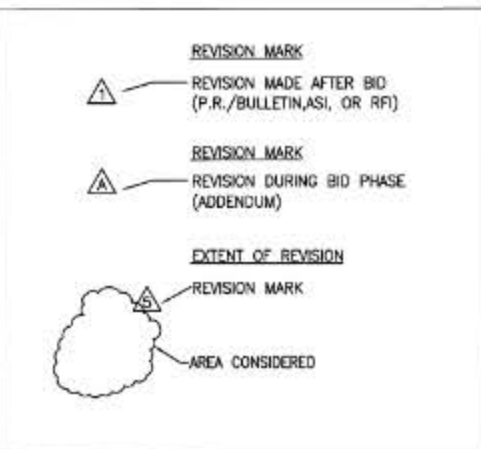


### ABBREVIATIONS

C.L.	CENTERLINE
P.C.	POINT OF CURVATURE
P.T.	POINT OF TANGENCY
F.L.	FLOW LINE
F.F.	FINISHED FLOOR
EL./ELEV.	ELEVATION
P.L.	PROPERTY LINE
CONC.	CONCRETE
GALV.	GALVANIZED
D.I.	DUCTILE IRON
C.U.	COPPER
PVC	POLY VINYL CHLORIDE PIPE
CMP	CORRUGATED METAL PIPE
P.E.	POLYETHYLENE
I.E.	INVERT ELEVATION
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
SDCB	STORM DRAIN CATCH BASIN
SDMH	STORM DRAIN MANHOLE
RT.	RIGHT
LT.	LEFT
R	RADIUS
L	ARC LENGTH
LF	LINEAR FEET
CONC. S/W	CONCRETE SIDEWALK
N	NORTH
E	EAST
S	SOUTH
W	WEST
NE	NORTHEAST
SE	SOUTHEAST
SW	SOUTHWEST
NW	NORTHWEST
OWS	OIL/WATER SEPARATOR
EX./EXIST.	EXISTING
R.O.W.	RIGHT OF WAY
E.O.P.	EDGE OF PAVEMENT
B.S.W.	BACK OF SIDEWALK
F.C.	FACE OF CURB
T.C.	TOP OF CURB
T.B.C.	TOP BACK OF CURB
N.I.C.	NOT IN CONTRACT

**NOTES:**  
 1. NOT ALL ABBREVIATIONS HAVE BEEN USED IN THE PROJECT DRAWINGS.  
 2. THERE MAY BE ABBREVIATIONS USED THAT ARE NOT LISTED IN THE ABBREVIATION SCHEDULE. ADVISE ENGINEER IF THERE ARE ABBREVIATIONS USED, WHICH ARE NOT LISTED, THAT REQUIRE CONFIRMATION OF MEANING.

### REVISIONS NOTATION



### LINETYPE AND SYMBOL LEGEND

	EXISTING	PROPOSED
LOT LINE	---	---
STREET CENTERLINE	---	---
RIGHT-OF-WAY LINE	---	---
UNDERGROUND POWER	---	---
UNDERGROUND TV	---	---
FIBER OPTICS	---	---
UNDERGROUND TELEPHONE	---	---
OVERHEAD POWER	---	---
OVERHEAD TELEPHONE	---	---
GAS MAIN	---	---
WATER MAIN	---	---
SANITARY SEWER MAIN	---	---
STORM DRAIN	---	---
DITCH/FLOW LINE	---	---
EDGE OF PAVEMENT	---	---
CURB AND GUTTER	---	---
BUILDING WALL	---	---
FENCE	---	---
ROCKERY WALL	---	---
ELEV. CONTOUR	---	---
TREES/VEGETATION	---	---
STORM DRAIN CATCH BASIN	---	---
UTILITY POLE	---	---
STREET/TRAFFIC SIGN	---	---
SAN. SEWER MANHOLE	---	---
SAN. SEWER CLEAN-OUT	---	---
WATER SERVICE METER	---	---
FIRE HYDRANT	---	---
POWER UTILITY VAULT	---	---
TELEPHONE RISER	---	---
MAILBOX	---	---

**NOTES:**  
 1. NOT ALL SYMBOLS, LINETYPES, AND ABBREVIATIONS HAVE BEEN USED IN THE PROJECT DRAWINGS.  
 2. THERE MAY BE SYMBOLS, LINETYPES, AND ABBREVIATIONS USED THAT ARE NOT SHOWN IN THE LEGEND. ADVISE ENGINEER IF THERE ARE SYMBOLS OR LINETYPES USED THAT REQUIRE CONFIRMATION OF MEANING.

### ASSOCIATED PROJECT CONSULTANTS, INC., P.S.



CIVIL ENGINEERS, PROJECT AND LAND USE MANAGEMENT,  
 BUILDING, STRUCTURAL, AND ENVIRONMENTAL SERVICES  
 1401 ASTOR STREET, BELLINGHAM, WA. 98225  
 PHONE (360) 671-1146 FAX (360) 671-1169

Att-19B



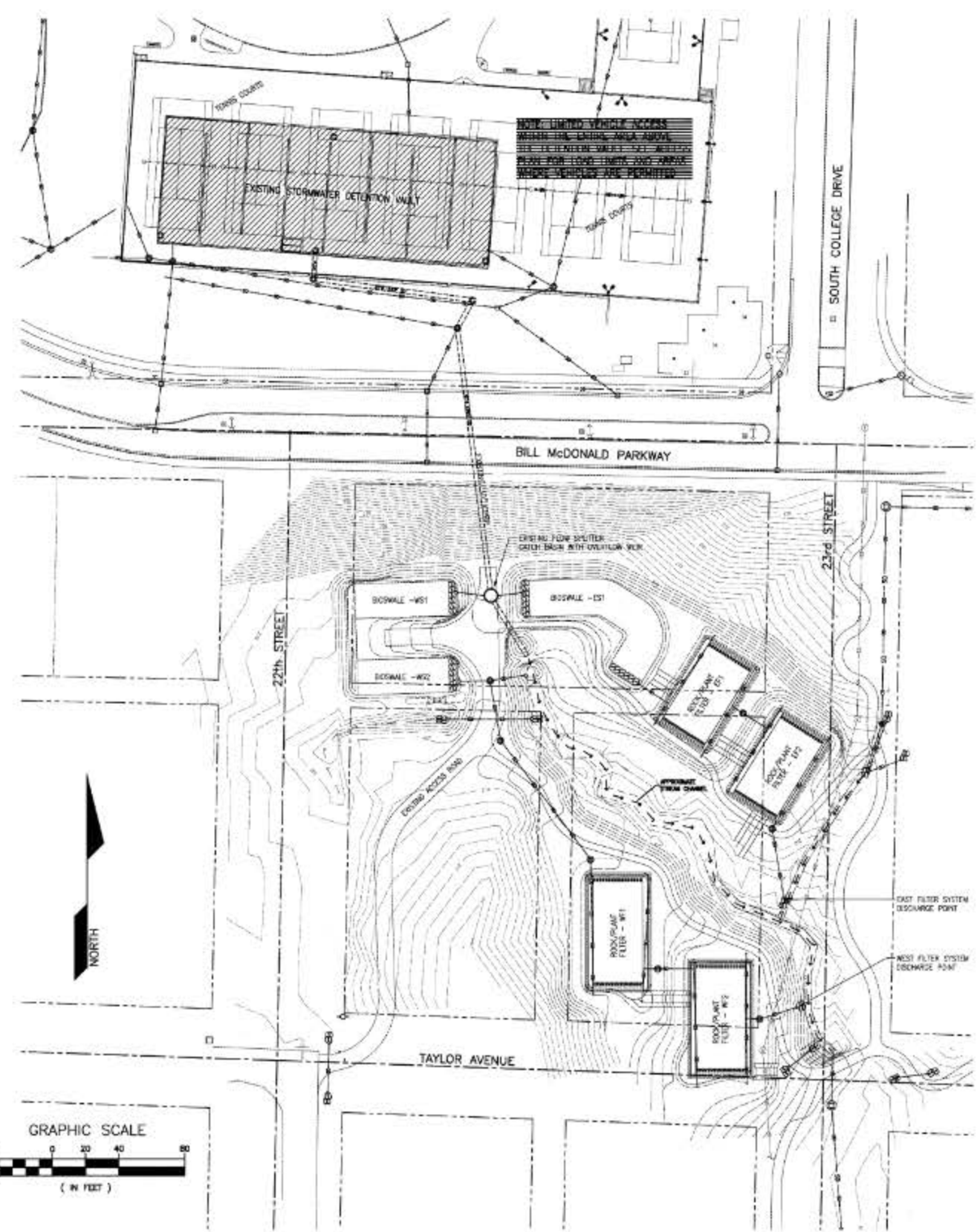
REV	DATE	DESCRIPTION	BY



### STAGING AREA AND PARKING NOTES

1. CONTRACTOR PARKING, STORAGE, STOCKPILING, ETC. SHALL BE ALLOWED ONLY WITHIN THE DESIGNATED STAGING AREAS AS SHOWN ON THE PLANS, SEE SPECIFICATIONS SECTION 015000.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY AND SECURITY FENCING OR OTHER MEASURES AS REQUIRED TO SECURE AND PROVIDE FOR SAFETY WITHIN THE AREAS WHERE WORK IS IN PROGRESS, AND WITHIN STAGING AREAS.



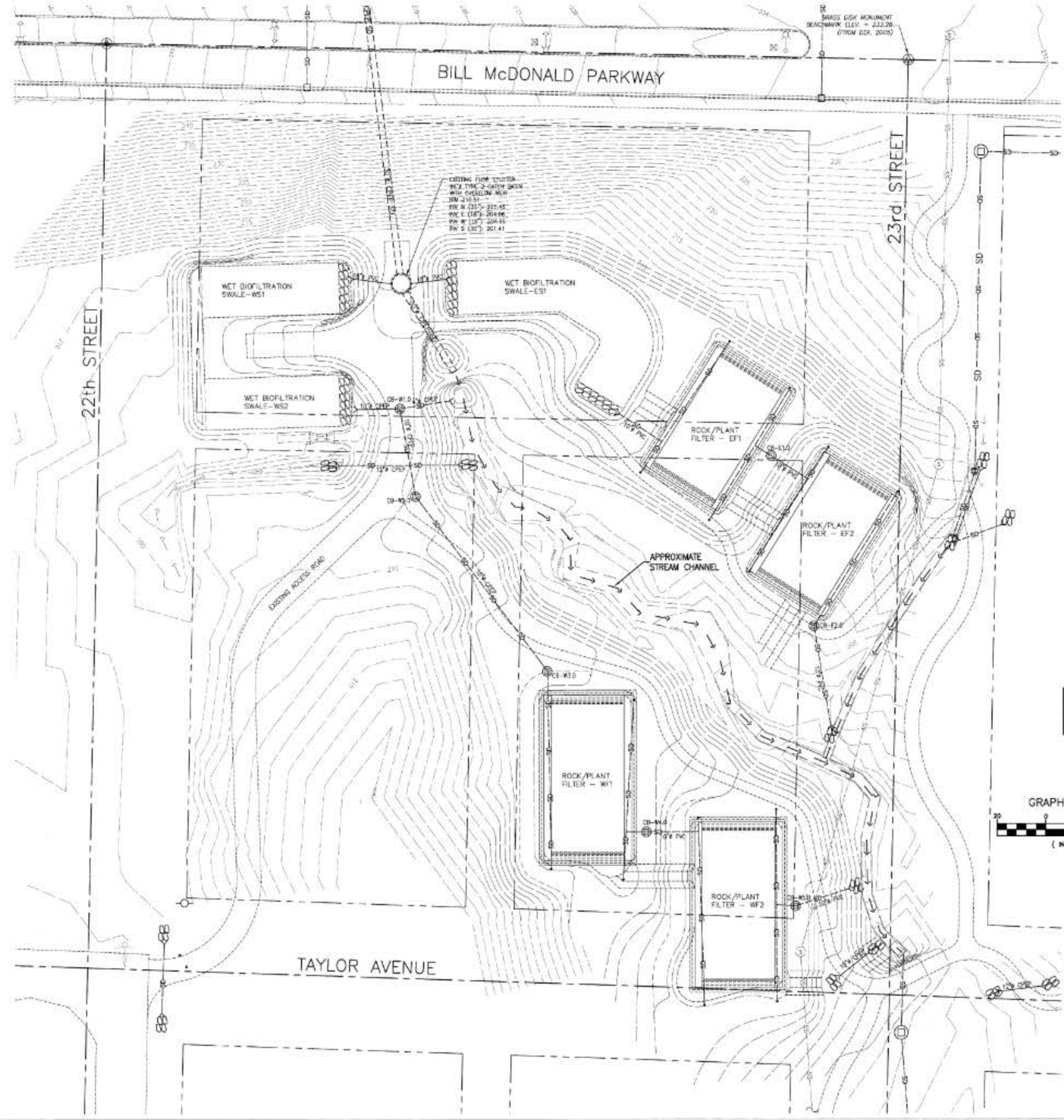
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AS-BUILT - RECORD DRAWINGS  
 OCTOBER 2012

PW656 - STORMWATER DETENTION FACILITY RESTORATION OVERALL DRAINAGE FACILITY SITE PLAN			
Client Name	Modifications	Reviewed by	Approval by
Designed by	Drawn by	Project Manager	Date

Drawing Zone	UT
Sheet #	2 of 11
AS Number	C2.0
Project Number	PW656
Revision Number	N4910





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**EXISTING SITE PLAN NOTES**

1. EXISTING SITE CONDITIONS MAP INCLUDING ALL PROPERTY LINES, EASEMENTS, EXISTING SITE FEATURES, TOPOGRAPHY, BUILDINGS, UTILITIES, AND OTHER FEATURES, IS BASED ON AS-BUILT RECORD DRAWINGS FROM WWU PROJECTS PW-275, PW-368, PW-393, AND PW-497, AND ON THE AS-BUILT SURVEY DRAWING PREPARED BY DAVID EVANS AND ASSOCIATES DATED 12/19/2005. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS.
2. THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR, SEE GENERAL NOTES IN PLAN SET.
3. EXISTING UTILITIES ARE SHOWN BASED ON THE REFERENCED TOPOGRAPHIC SURVEY AND WWU RECORD DRAWINGS, AND MAY NOT REPRESENT ALL UNDERGROUND OR ABOVE-GROUND UTILITIES OR SITE FEATURES. ALL EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED.

**PROJECT INTENT**

1. This project will maintain and rehabilitate the WWU South Campus Water Quality Facility, including removal of sediment, replacement of gravel and plant materials, and other restoration work as shown on these plans.
2. The design of the South Campus Water Quality Facility, including the choice of system type, design criteria, standards, flow capacities, treatment levels, and all aspects of the facility design are the responsibility of the Engineer of Record for the original design and construction, and are not within the scope or intent of the current project.
3. As shown on these plans, the maintenance and rehabilitation work includes improvements to the facility, such as improved sediment catchment structures. These improvements do not change the basic operation of the system and are consistent with the original design intent.

REV	DATE	DESCRIPTION



PW656 - STORMWATER DETENTION FACILITY RESTORATION EXISTING CONDITIONS SITE PLAN			
Client Name	Project Name	Project Manager	Scale
Designer	Engineer		

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Building/Zone	UT
Sheet #	C2.1
Job Number	PW656
Version Number	N4911





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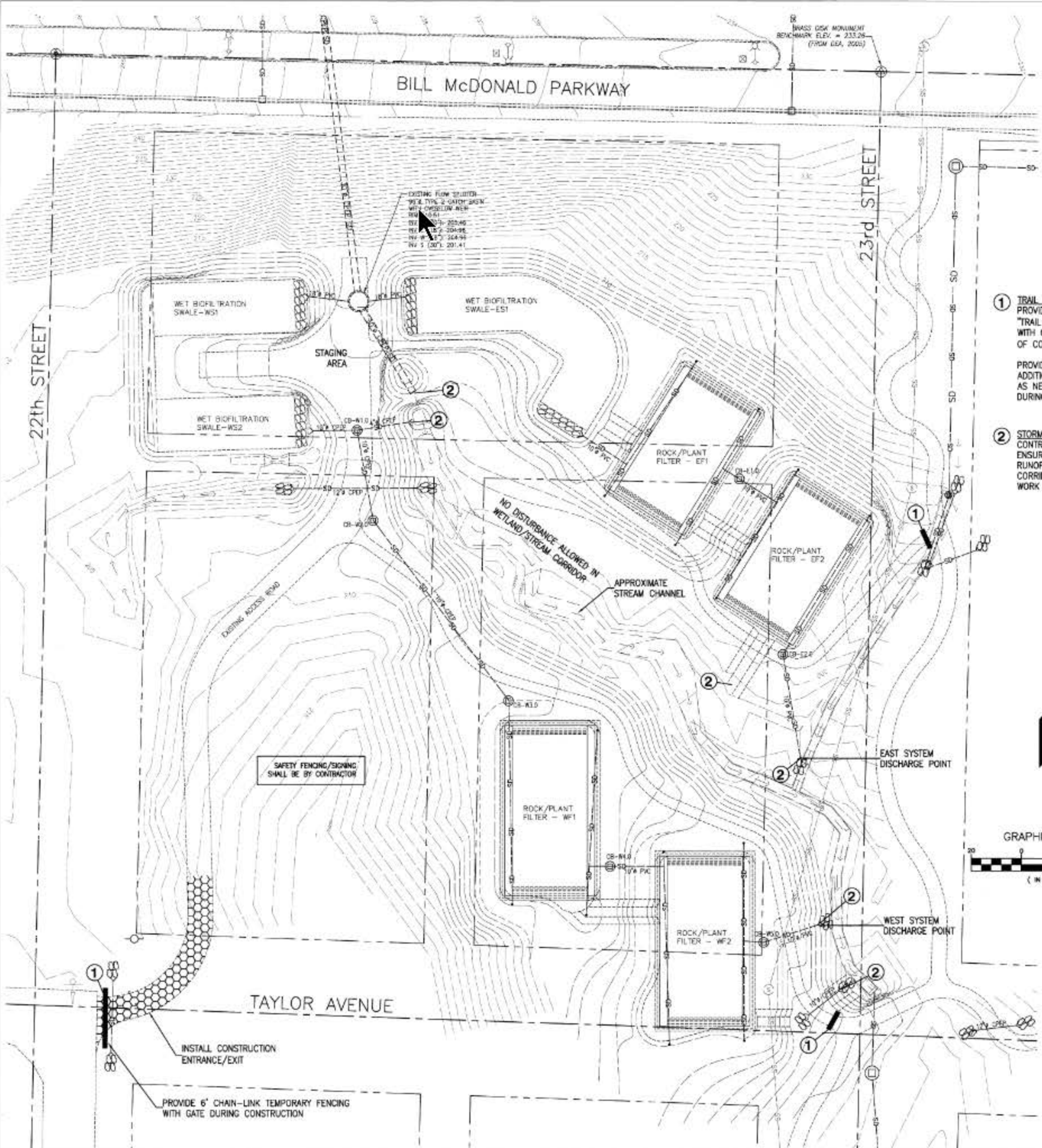


REV	DATE	DESCRIPTION	BY



PW656 - STORMWATER DETENTION FACILITY RESTORATION TEMPORARY EROSION AND SEDIMENT CONTROL PLAN	Client/Owner	
	Design/Drawn by	
	Project Manager	
	Check	

Building/Zone	UT
Sheet #	C3.0
Job Number	PW656
Microfile Number	N4812



**EROSION CONTROL NOTES**

1. THE IMPLEMENTATION OF THE EROSION CONTROL PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF EROSION CONTROL FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION IS ESTABLISHED.
2. THE EROSION CONTROL FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL LAND DISTURBING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS. THE EROSION CONTROL FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS, DURING THE CONSTRUCTION PERIOD, THESE EROSION CONTROL FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT LEAVE THE SITE.
3. THE EROSION CONTROL FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING. THE EROSION CONTROL FACILITIES ON INACTIVE PORTIONS OF THE SITE SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE PER MONTH OR WITHIN 48 HOURS FOLLOWING A MAJOR STORM EVENT. IF AT ANY TIME IT IS DETERMINED THAT THE OBJECTIVES OF THE TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN ARE NOT BEING MET, ADDITIONAL DEPARTMENT OF ECOLOGY BEST MANAGEMENT PRACTICES MAY BE REQUIRED.
4. ALL EROSION CONTROL MEASURES AND FACILITIES ARE TO BE IN PLACE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
5. ALL DISTURBED AREAS OR EXPOSED SOILS SHALL BE COVERED WITH MULCH OR WOOD CHIPS IF SOILS ARE TO REMAIN UNWORKED FOR MORE THAN 2 DAYS, OCTOBER 1 THROUGH APRIL 30, OR 7 DAYS, MAY 1 THROUGH SEPTEMBER 30. UPON COMPLETION OF CONSTRUCTION, ALL DISTURBED AREAS AND CUT/FILL SLOPES ARE TO BE SEEDED WITH THE FOLLOWING EROSION CONTROL SEED MIXTURE:

- 75-80% TALL FESCUE
- 10-15% SEASIDE/COLONIAL BENTGRASS
- 5-10% REDTOP

CONTRACTOR SHALL BE RESPONSIBLE FOR VEGETATION UNTIL IT IS FULLY ESTABLISHED, AS APPROVED BY THE ENGINEER.

6. ANY TEMPORARY DITCHES OR DIVERSIONS OF WATER SHALL BE ROUTED THROUGH STILLING POOLS AND PROVIDED WITH PEA GRAVEL CHECK DAMS AT A MAXIMUM SPACING OF 50' O.C.
7. EXISTING CATCH BASINS ACCEPTING RUNOFF FROM THE SITE AND DRAINAGE INLETS PLACED INTO SERVICE PRIOR TO FULL SITE STABILIZATION SHALL BE PROTECTED WITH CATCH BASIN INSERTS PER CITY OF BELLINGHAM STANDARD PLAN EC-620.
8. ALL SAWCUTTING AND SURFACING SHALL BE PERFORMED IN ACCORDANCE WITH DEPARTMENT OF ECOLOGY BMP C152. SLURRY AND CUTTINGS SHALL BE VACUUMED DURING SAWCUTTING OPERATIONS, SHALL NOT REMAIN ON PERMANENT PAVEMENT OVERNIGHT, SHALL NOT DRAIN TO ANY NATURAL OR CONSTRUCTED DRAINAGE CONVEYANCE, AND SHALL BE DISPOSED OF IN A MANNER THAT DOES NOT VIOLATE GROUNDWATER OR SURFACE WATER QUALITY STANDARDS.

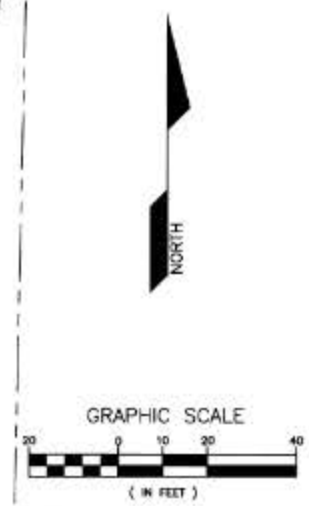
**TRAIL CLOSURE AND MAINTENANCE NOTES**

1. THE PROJECT SITE CONTAINS SEVERAL SECTIONS OF PUBLIC ACCESS TRAILS, AS SHOWN ON THE SITE PLAN. A PORTION OF THE TRAILS WERE CONSTRUCTED TO PROVIDE MAINTENANCE ACCESS TO THE WATER QUALITY FACILITY. CLOSURE OF THE TRAILS AS SHOWN IS ANTICIPATED THROUGHOUT THE DURATION OF WORK UNDER THIS PROJECT.
2. THE CONTRACTOR SHALL CLOSE THE TRAILS THROUGH THE CONSTRUCTION AREA DURING THE WORK, AND SHALL BE RESPONSIBLE TO PROVIDE ALL SIGNING, SAFETY FENCING AND OTHER MEASURES TO LIMIT ACCESS. SEE SPECIFICATIONS SECTION 015800 FOR ADDITIONAL REQUIREMENTS.
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT IS REQUIRED DURING CONSTRUCTION AS SHOWN ON THE TEMPORARY EROSION CONTROL PLAN AND DETAILS. FOLLOWING COMPLETION OF THE RESTORATION WORK, THE CONTRACTOR SHALL RESTORE THE TRAIL TO ITS ORIGINAL CONDITION PRIOR TO THIS PROJECT.
4. ALL WEAR AND DAMAGE TO THE TRAILS CAUSED BY THIS PROJECT, OR AS A RESULT OF THE CONTRACTOR'S MEANS AND METHODS SHALL BE RESTORED TO THE TRAILS ORIGINAL CONDITION PRIOR TO THIS PROJECT.

**STAGING AREA NOTES**

1. PREPARATION AND STABILIZATION OF STAGING AREA AS REQUIRED SHALL BE THE CONTRACTOR'S RESPONSIBILITY. THE STAGING AREA IS PROVIDED AS AN OPTION FOR THE CONTRACTOR'S CONVENIENCE AND ALL COSTS TO PREPARE, STABILIZE, MANAGE, AND RESTORE THE AREA SHALL BE AT THE CONTRACTOR'S EXPENSE. STAGING SHALL BE LIMITED TO THE EXISTING TRAIL/ACCESS AREA AND SHOULDERS. NO TREE REMOVAL WILL BE PERMITTED.
2. FOLLOWING CONSTRUCTION, THE STAGING AREA SHALL BE FULLY RESTORED TO ITS PRE-PROJECT CONDITION, INCLUDING AT A MINIMUM MULCHING, SEEDING, AND REPLACEMENT OF DAMAGED VEGETATION AS REQUIRED BY THE OWNER.

1. TRAIL CLOSURE POINT  
PROVIDE SIGN READING "TRAIL CLOSED FOR CONSTRUCTION" WITH CONTACT NAME AND PHONE NUMBER OF CONTRACTOR'S PROJECT MANAGER.  
  
PROVIDE TEMPORARY FENCING, BARRICADES, ADDITIONAL SIGNING, OR OTHER MEASURES AS NECESSARY TO RESTRICT ACCESS DURING CONSTRUCTION.
2. STORMWATER DISCHARGE POINT  
CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT NO POLLUTED STORMWATER RUNOFF IS DISCHARGED TO THE STREAM CORRIDOR AS A RESULT OF CONSTRUCTION WORK UNDER THIS PROJECT.



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CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (SWPPP):



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Element 1: Mark Clearing Limits

- Prior to beginning land disturbing activities, including clearing and grading, all clearing limits, sensitive areas and their buffers, and trees that are to be preserved within the construction area should be clearly marked, both in the field and on the plans, to prevent damage and off-site impacts.
- Plastic, metal, or stake wire fence may be used to mark the clearing limits.

Prior to beginning construction, the limits of disturbance shall be staked on the site by the project surveyor. Flagging and Sit Fence will be installed around the perimeter of the site along the limits of disturbance as shown on the approved clearing plan, and shall be maintained throughout construction.

Element 2: Establish Construction Access

- Construction vehicle access and exit shall be limited to one route if possible.
- Access points shall be stabilized with quarry spalls or crushed rock to minimize the tracking of sediment onto public roads.
- Wheel wash or tire baths should be located on-site, if applicable.
- Roads shall be cleaned thoroughly at the end of each day. Sediment shall be removed from roads by shoveling or pickup sweeping and shall be transported to a controlled sediment disposal area. Street washing will be allowed only after sediment is removed in this manner.
- Street wash wastewater shall be controlled by pumping back onsite, or otherwise be prevented from discharging into systems tributary to state surface waters.
- Construction access restoration shall be equal to or greater than the pre-construction condition.

Element 3: Control Flow Rates

- Properties and waterways downstream from development sites shall be protected from erosion due to increases in the volume, velocity, and peak flow rate of stormwater runoff from the project site.

Element 4: Install Sediment Controls

- The silt layer, native topsoil, and natural vegetation shall be retained in an undisturbed state to the maximum extent practicable.
- Prior to leaving the construction site, stormwater runoff from disturbed areas shall pass through a sediment pond or other appropriate sediment removal BMP. Runoff from fully stabilized areas may be discharged without a sediment removal BMP. Full stabilization means concrete or asphalt paving, quarry spalls used in a lock lining, or the use of rolled erosion products, a bonded fiber matrix product, or vegetative cover in a manner that fully prevents soil erosion. The local permitting authority shall inspect and approve areas stabilized by means other than pavement or quarry spalls.
- Sediment ponds, vegetated buffer strips, sediment barriers or filters, dikes, and other BMPs intended to trap sediment on-site shall be constructed as one of the first steps in grading. These BMPs shall be functional before other land disturbing activities take place.
- Earthen structures such as dams, dikes, and diversions shall be seeded and mulched according to the timing indicated in element #5.

During grading activities, all runoff from disturbed areas shall be routed through the stormwater ponds, or through drop-inlet plunge pools prior to dispersed outfall into a vegetated area. Ditches and swales shall have erosion control check dams per City of Bellingham standard detail EC-845 at a maximum spacing of 100-feet on center. Storm drain inlets shall be protected with catch basin inserts per City of Bellingham standard detail EC-620.

The Erosion Control Specialist shall monitor the condition and performance of all sediment control BMPs regularly. If at any time during construction it is determined that the water quality requirements are not being achieved, additional BMPs may be required to prevent sedimentation downstream.

Element 5: Stabilize Soils

- All exposed and unworked soils shall be stabilized by application of effective BMPs that protect the soil from the erosive forces of raindrop impact and flowing water, and wind erosion.
- From October 1 through April 30, no soils shall remain exposed and unworked for more than 2 days. From May 1 to September 30, no soils shall remain exposed and unworked for more than 7 days. This condition applies to all soils on site, whether at final grade or not. These time limits may be adjusted by the local permitting authority if it can be shown that the average time between storm events justifies a different standard.
- Soils shall be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast.
- Applicable practices include, but are not limited to, temporary and permanent seeding, sodding, mulching, plastic covering, soil application of polyacrylamide (PAM), early application of gravel base on areas to be paved, and dust control.
- Soil stabilization measures selected should be appropriate for the time of year, site conditions, estimated duration of use, and potential water quality impacts that stabilization agents may have on downstream waters or ground water.
- Soil stockpiles must be stabilized and protected with sediment trapping measures.

Work on linear construction sites and activities, including right-of-way and easement clearing, roadway development, pipelines, and trenching for utilities, shall not exceed the capability of the individual contractor for his portion of the project to install the bedding materials, roadbeds, structures, pipelines, and/or utilities, and to re-stabilize the disturbed soils, meeting the timing conditions listed above.

Soil stabilization BMPs to be used on this site include BMP C120 Temporary and Permanent Seeding, BMP C121 Mulching, and BMP C140 Dust Control. Roadway areas shall be stabilized by installing gravel subgrade when grading is complete. Areas that will be vegetated shall be covered with mulch or hydromulch in accordance with the approved TESP.

Element 6: Protect Slopes

- Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion.
- Consider soil type and its potential for erosion.
- Reduce slope runoff velocities by reducing the continuous length of slope with terracing and diversions, reduce slope steepness, and roughen slope surface.
- Divert upslope drainage and run-on waters from off-site with interceptors at top of slope. Off-site stormwater should be handled separately from stormwater generated on the site. Diversion of off-site stormwater around the site may be a viable option. Diverted flows shall be redirected to the natural drainage location at or before the property boundary.
- Contain downslope collected flows in pipes, slope drains, or protected channels.
- Provide drainage to remove ground water intersecting the slope surface of exposed soil areas.
- Excavated material shall be placed on the uphill side of trenches, consistent with safety and space considerations.
- Check dams shall be placed at regular intervals within trenches that are cut down a slope.
- Stabilize soils on slopes, as specified in element #5.

Element 7: Protect Drain Inlets

- All storm drain inlets made operable during construction shall be protected so that stormwater runoff shall not enter the conveyance system without first being filtered or treated to remove sediment.
- All approach roads shall be kept clean, and all sediment and street wash water shall not be allowed to enter storm drains without prior and adequate treatment unless treatment is provided before the storm drain discharges to waters of the state.

Sedimentation in the downstream conveyance system will be prevented by implementing the sediment trapping BMPs described above, and shown on the TESP.

Element 8: Stabilize Channels and Outlets

- All temporary on-site conveyance channels shall be designed, constructed and stabilized to prevent erosion from the expected velocity of flow from a 2 year, 24-hour frequency storm for the developed condition.
- Stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent streambanks, slopes and downstream reaches shall be provided at the outlets of all conveyance systems.

Element 9: Control Pollutants

- All pollutants, including waste materials and demolition debris, that occur on-site during construction shall be handled and disposed of in a manner that does not cause contamination of stormwater.
- Cover, containment, and protection from vandalism shall be provided for all chemicals, liquid products, petroleum products, and non-inert wastes present on the site (see Chapter 173-304 WAC for the definition of inert waste).
- Maintenance and repair of heavy equipment and vehicles involving oil changes, hydraulic system drain down, solvent and de-greasing operations, fuel tank drain down and removal, and other activities which may result in discharge or spillage of pollutants to the ground or into stormwater runoff must be conducted using spill prevention measures, such as drip pans. Contaminated surfaces shall be cleaned immediately following any discharge or spill incident. Emergency repairs may be performed on-site using temporary plastic placed beneath and, if raining, over the vehicle.
- Wheel wash, or tire bath wastewater, shall be discharged to a separate on-site treatment system or to the sanitary sewer.
- Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Manufacturers' recommendations shall be followed for application rates and procedures.

BMPs shall be used to prevent or treat contamination of stormwater runoff by pH modifying sources. These sources include bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, and concrete pumping and mixer outwash waters.

Stormwater discharges shall not cause a violation of the water quality standard for pH in the receiving water.

Element 10: Control De-watering

- All foundation, vault, and trench de-watering water, which has similar characteristics to stormwater runoff at the site, shall be discharged into a controlled conveyance system, prior to discharge to a sediment trap or sediment pond. Channels must be stabilized, as specified in element #8.
- Clean, non-turbid de-watering water, such as well-point ground water, can be discharged to systems tributary to state surface waters, as specified in element #8, provided the de-watering flow does not cause erosion or flooding of the receiving waters. These clean waters should not be routed through sediment ponds with stormwater.
- Highly turbid or otherwise contaminated de-watering water, such as from construction equipment operation, clamshell digging, concrete tremie pour, or work inside a cofferdam, shall be handled separately from stormwater of the site.

Other disposal options, depending on site constraints, may include: 1) infiltration, 2) transport off-site in vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters, 3) on-site treatment using chemical treatment or other suitable treatment technologies, or 4) sanitary sewer discharge with local sewer district approval if there is no other option.

Element 11: Maintain BMPs

- All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function. All maintenance and repair shall be conducted in accordance with BMPs.
- Sediment control BMPs shall be inspected weekly or after a runoff-producing storm event during the dry season and daily during the wet season.
- All temporary erosion and sediment control BMPs shall be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil areas resulting from removal of BMPs or vegetation shall be permanently stabilized.

Element 12: Manage the Project

- Phasing of construction: Construction shall be phased and sequenced where feasible in order to prevent, to the maximum extent practicable, the transport of sediment from the development site during construction. Revegetation of exposed areas and maintenance of that vegetation shall be an integral part of the activities for any phase.
- Seasonal work limitations - from October 1 through April 30, clearing, grading, and other soil disturbing activities shall only be permitted if shown to the satisfaction of the local permitting authority that silt-laden runoff will be prevented from leaving the construction site through a combination of the following:
  1. Site conditions including existing vegetative coverage, slope, soil type and proximity to receiving waters; and
  2. Limitations on activities and the extent of disturbed areas; and
  3. Proposed erosion and sediment control measures.

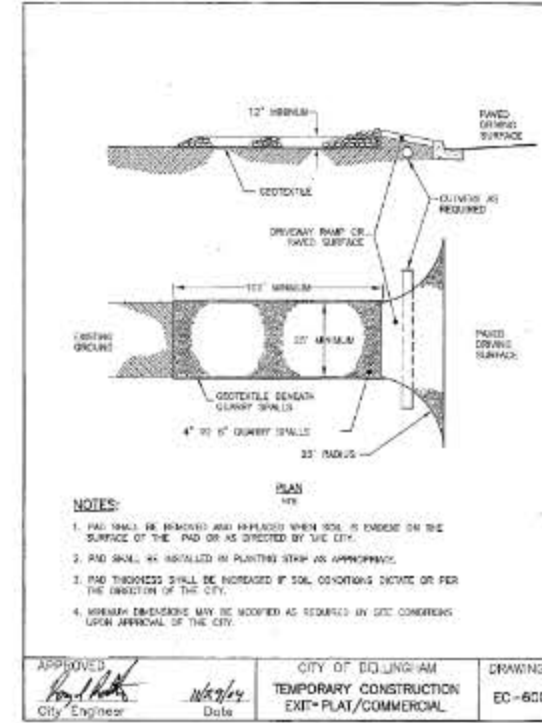
The following activities are exempt from the seasonal clearing and grading limitations:

1. Routine maintenance and necessary repair of erosion and sediment control BMPs;
2. Routine maintenance of public facilities or existing utility structures that do not expose the soil or result in the removal of the vegetative cover to soil; and
3. Activities where there is one hundred percent infiltration of surface water runoff within the site in approved and installed erosion and sediment control facilities.

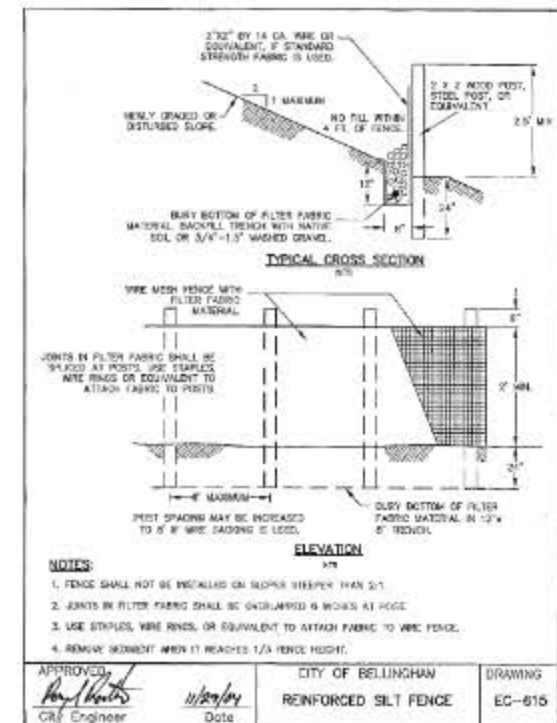
Inspection and monitoring - all BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function.

Whenever inspection and/or monitoring reveals that the BMPs identified in the construction SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, the SWPPP shall be modified, as appropriate, in a timely manner.

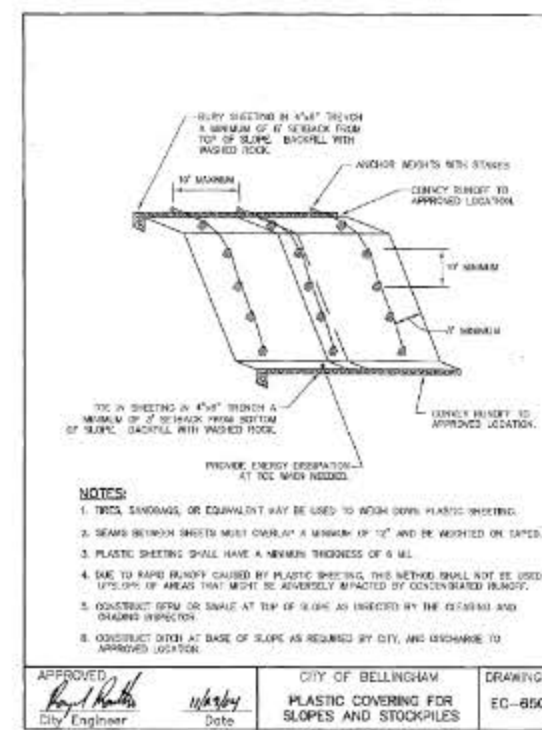
Maintenance of the construction SWPPP - the construction SWPPP shall be retained on-site or within reasonable access to the site. The construction SWPPP shall be modified whenever there is a significant change in the design, construction, operation, or maintenance of any BMP.



CONSTRUCTION EXIT  
NOT TO SCALE



SILT FENCE  
NOT TO SCALE



PLASTIC COVERING  
NOT TO SCALE

REV	DATE	DESCRIPTION	BY



PW656 - STORMWATER DETENTION FACILITY RESTORATION SWPPP AND EROSION CONTROL DETAILS	Checked by:	
	Designed by:	
	Reviewed by:	
	Project Manager:	
	Drawn by:	
	Date:	

Building/Zone	UT
Sheet # of #	C3.1
Job Number	PW656
Block/Plot No. (if any)	N4813

CALL 2 DAYS BEFORE YOU DIG  
1-800-424-5555

AS-BUILT - RECORD DRAWINGS  
OCTOBER 2012





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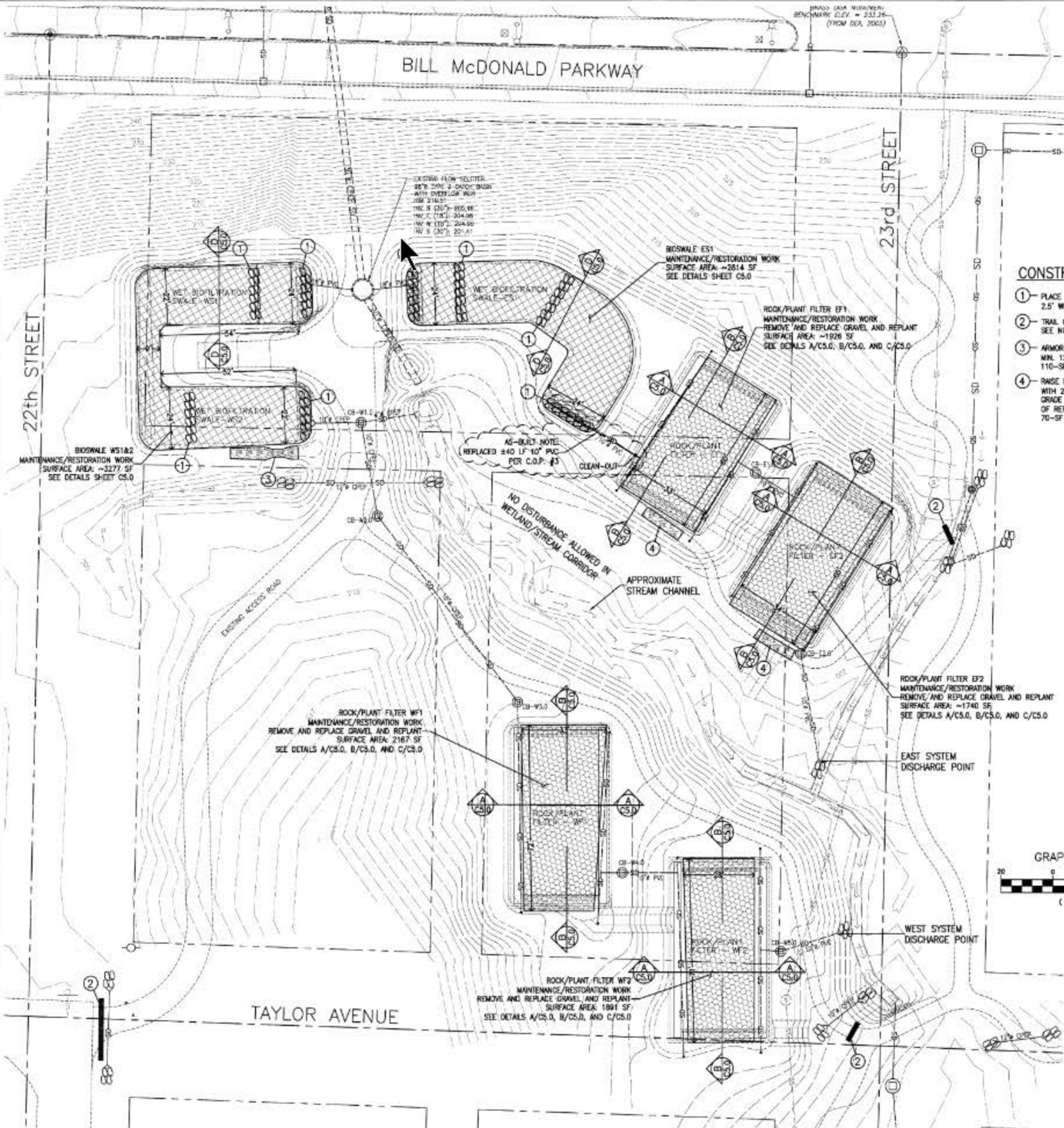


REV	DATE	DESCRIPTION



PW656 - STORMWATER DETENTION FACILITY RESTORATION WATER QUALITY FACILITY RESTORATION PLAN	Prepared by	Checked by	Reviewed by	Approved by

Building/Zone	UT
Sheet #	4 of 15
Job Number	C4.0
Project Name	PW656
Worksheet Number	N4814



**CONSTRUCTION NOTE KEY:**

- 1 PLACE QUARRY SPALLS MIN. 6" DEEP AND 2.5' WIDE ACROSS FULL WIDTH OF BIOSWALE
- 2 TRAIL CLOSURE POINT SEE NOTES ON SHEET C3.0
- 3 ARMOR EXISTING OVERFLOW SPILLWAY WITH MIN. 12" DEPTH OF QUARRY SPALLS, 110-SF AREA AS SHOWN
- 4 RAISE EXISTING TRAIL GRADE 12-INCHES WITH 2" CRUSHED ROCK OVER GRAVEL BASE, GRADE TO MATCH EXISTING TRAIL AT ENDS OF REPAIR AREA. (2) LOCATIONS, APPROX. 70'-SF EACH.

**WATER QUALITY FACILITY MAINTENANCE NOTES**

1. THE STORMWATER FACILITY IS ACTIVE AND CONTINUOUSLY RECEIVES RUNOFF FROM THE WWU SOUTH CAMPUS BASIN. THE ESTIMATED MINIMUM DRY SEASON BASE FLOW ENTERING THE SITE THROUGH THE EXISTING CONVEYANCE PIPES IS 25-GPM.
2. THE PROJECT WORK AREA IS ADJACENT TO REGULATED WETLAND AND STREAM AREAS THAT MUST BE PROTECTED AT ALL TIMES FROM DISTURBANCE AND FROM ANY DISCHARGE OF POLLUTANTS OR POLLUTED RUNOFF.
3. THE DOWNSTREAM STORMWATER CONVEYANCE IS PART OF THE CITY OF BELLINGHAM STORMWATER UTILITY, AND DISCHARGES TO PADDOEN CREEK.
4. THE CONTRACTOR SHALL MANAGE THE PROJECT TO COMPLETE THE CONTRACT WORK, AND PROVIDE FOR SEQUENCING AND SCHEDULING TO MANAGE STORMWATER RUNOFF FROM THE SITE, AND STORMWATER ENTERING THE SITE FROM THE UPSTREAM DRAINAGE BASIN. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT NO TURBID OR OTHERWISE POLLUTED STORMWATER IS DISCHARGED FROM THE STORMWATER FACILITY TO THE ON-SITE WETLAND/STREAM AREAS OR THE DOWNSTREAM CONVEYANCE SYSTEM AS A RESULT OF THE WORK UNDER THIS CONTRACT.
5. THE CONTRACTOR'S WORK PLAN SHALL KEEP ONE SIDE (EAST OR WEST) OF THE STORMWATER TREATMENT FACILITY OPERATIONAL AT ALL TIMES. STORMWATER ENTERING THE SITE FROM UPSTREAM SHALL BE BYPASSED THROUGH THE OPERATIONAL AND STABILIZED PORTIONS OF THE WATER QUALITY FACILITY PRIOR TO DISCHARGE AT ALL TIMES UNLESS OTHERWISE APPROVED BY THE ENGINEER BASED ON A WORK PLAN THAT PROVIDES EQUAL OR BETTER TREATMENT AND PROTECTION OF WATER QUALITY. WITH APPROVAL FROM THE ENGINEER, THE CONTRACTOR MAY ROUTE STORMWATER TO BYPASS THE WET BIOSWALE CELLS AND FLOW DIRECTLY TO THE ROCK PLANT FILTERS, TO ALLOW PLANT ESTABLISHMENT IN THE BIOSWALES.
6. THE CONTRACTOR SHALL FLUSH AND CLEAN OUT ALL STORMWATER PIPES AND CATCH BASIN STRUCTURES WITHIN THE WATER QUALITY FACILITY, EXCEPT FOR PIPES DISCHARGING DIRECTLY TO THE WETLAND OR STREAM AREAS.
7. SEE THE PROJECT SPECIFICATIONS SECTION 310500 FOR DISPOSAL REQUIREMENTS FOR MATERIALS EXCAVATED OR OTHERWISE REMOVED FROM THE STORMWATER FACILITIES.
8. ALL DISTURBED AREAS SHALL BE RESTORED AND SEED FOR EROSION CONTROL. SEE THE TEMPORARY EROSION AND SEDIMENT CONTROL PLAN FOR SEED MIX FOR AREAS OUTSIDE THE WET BIOSWALES AND ROCK/PLANT FILTERS.
9. THE CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING PIPES, ROCK GABIONS, CATCH BASINS, STRUCTURES, WALLS, SLOPES, TRAILS, CLAY LINER, VEGETATION AND OTHER EXISTING FEATURES TO REMAIN. ANY DAMAGE TO EXISTING FACILITIES SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.

**ROCK/PLANT FILTER PLANTING SCHEDULE**

QUANTITY	SPECIES	SIZE	SPACING
328	sawbreak sedge ( <i>Carex stipota</i> )	5' root-length	2' O.C.
328	slough sedge ( <i>Carex abnupta</i> )	5' root-length	2' O.C.
328	hardstem bulrush ( <i>Scirpus occlusus</i> )	5' root-length	2' O.C.
328	small-fruited bulrush ( <i>Scirpus microcarpus</i> )	5' root-length	2' O.C.

See the Project Specifications Section 329000 for Planting Requirements

**WET BIOSWALE SEED MIX**  
[Seed mix revised by approved Contractor substitution - As-built]

SPECIES	% by Weight
creeping bentgrass, Pannocross	10%
redtop	10%
tall fescue, Fawn	10%
disk clover	10%
creeping foxtail, Garrison	15%
water foxtail	15%
American sloughgrass	15%
spike bentgrass	15%

SEEDING SHALL INCLUDE FERTILIZER APPLICATION AT THE FOLLOWING RATES:  
134 lbs/acre of Total Nitrogen  
58 lbs/acre of phosphoric acid (P2O5)  
58 lbs/acre of soluble potash (K2O)

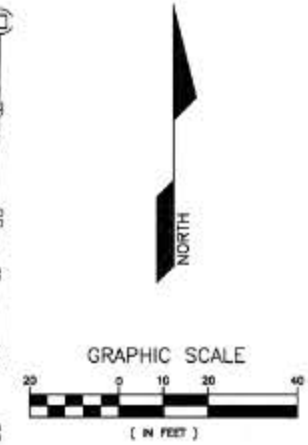
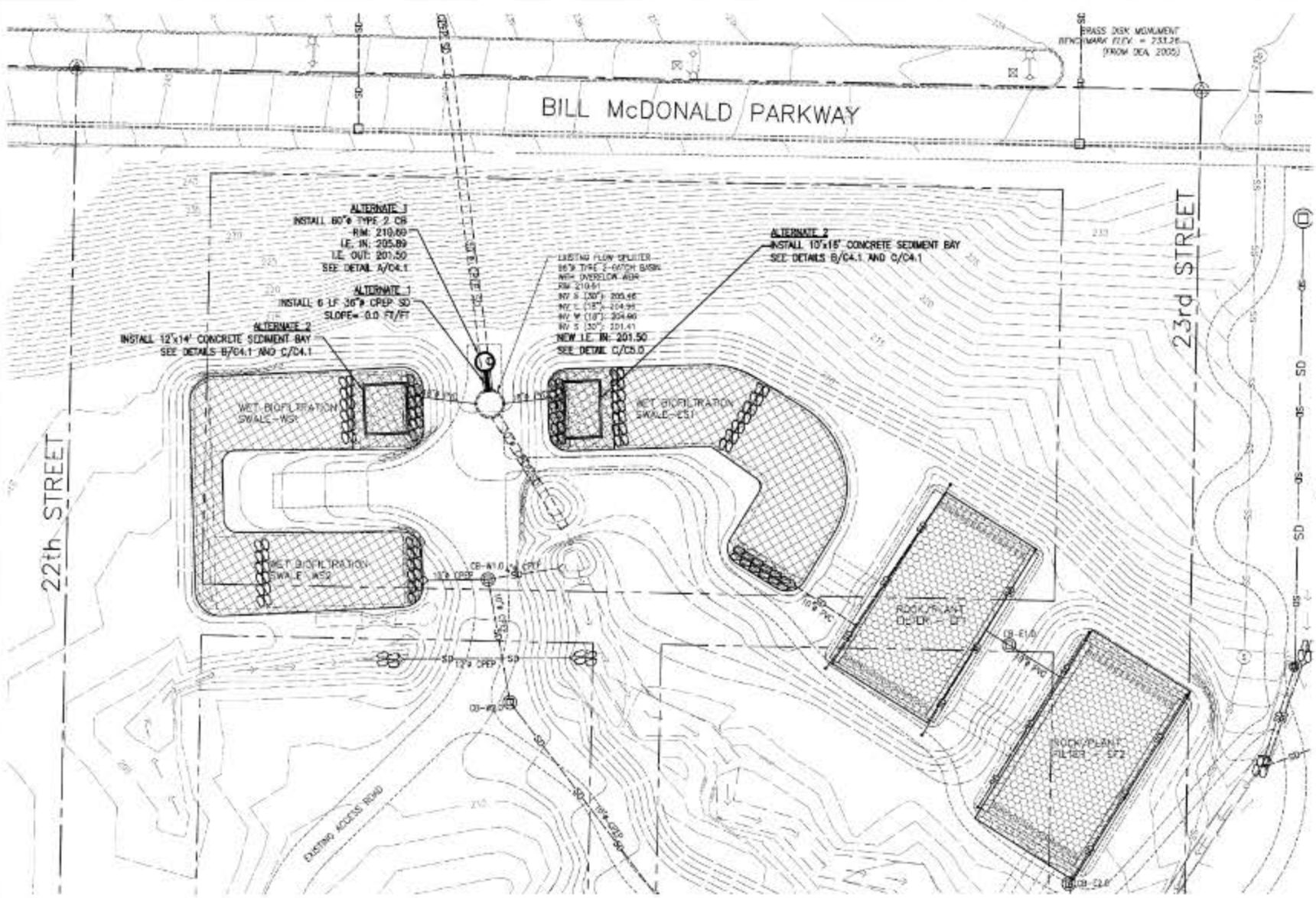
SITE PLAN - BASE BID  
1" = 20'

AS-BUILT - RECORD DRAWINGS  
OCTOBER 2012

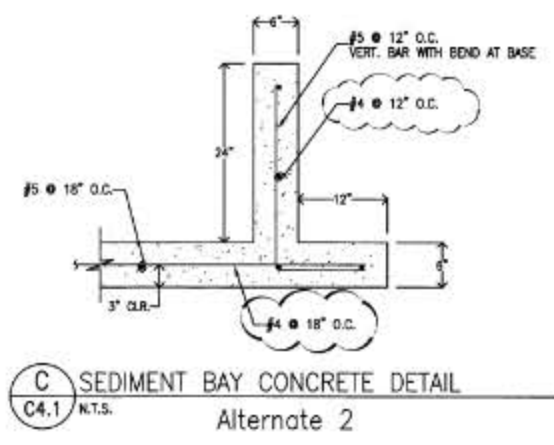




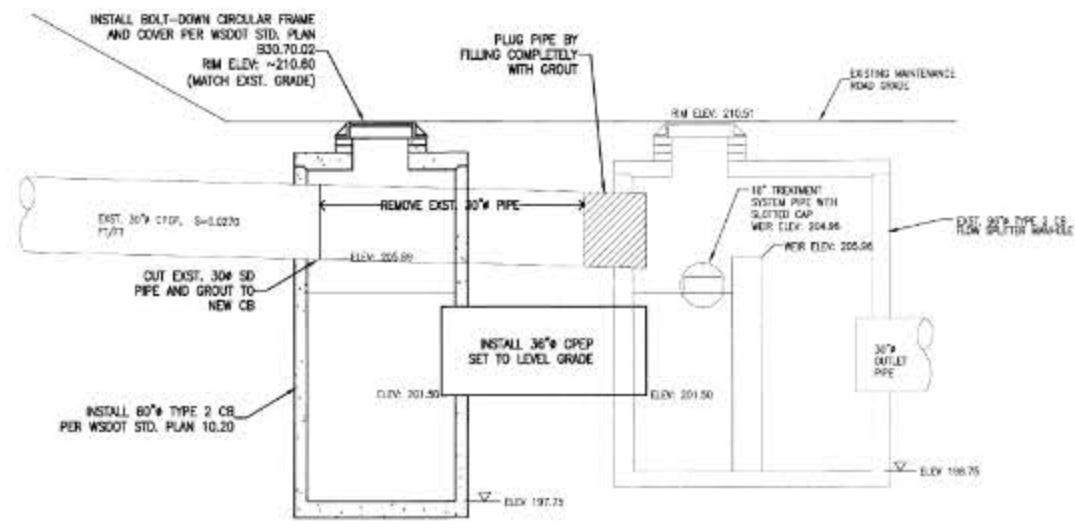
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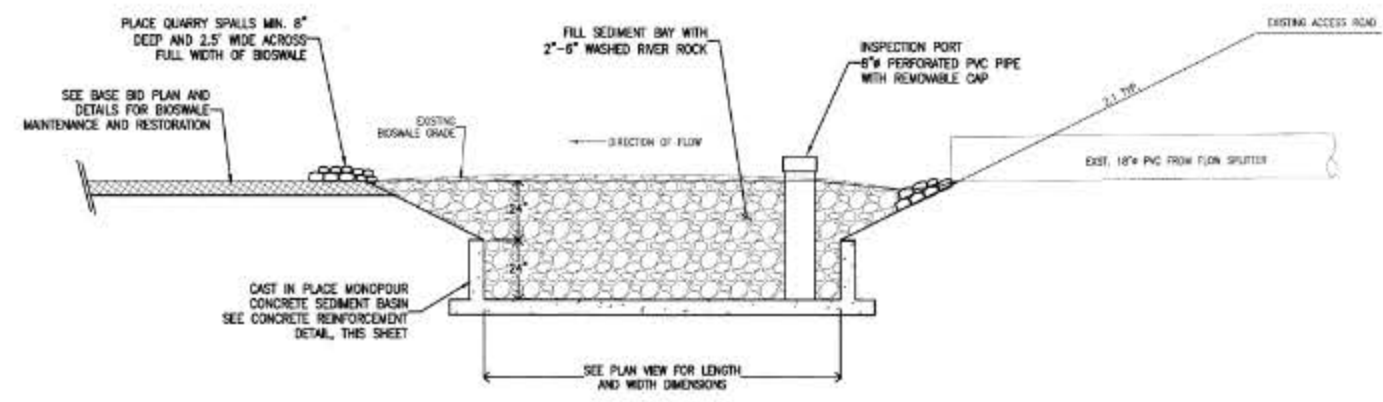
SITE PLAN - ALTERNATES 1 AND 2  
1" = 20'



C SEDIMENT BAY CONCRETE DETAIL  
C4.1 N.T.S. Alternate 2



A SEDIMENT TRAP AT FLOW SPLITTER  
C4.1 N.T.S. Alternate 1



B BIOSWALE SEDIMENT BAY PROFILE  
C4.1 N.T.S. Alternate 2

AS-BUILT - RECORD DRAWINGS  
OCTOBER 2012

REV	DATE	DESCRIPTION



PW656 - STORMWATER DETENTION FACILITY RESTORATION ALTERNATES 1 AND 2			
Client Name	Washington State Department of Ecology	Project Manager	Chris
Designer	Associated Project Consultants, Inc.	Checked by	Chris
Drawn by	Chris	Reviewed by	Chris

Building Zone	UT
Sheet # of #	C4.1
Job Number	PW656
Micro Number	N4815





Att-19H

**ROCK/PLANT FILTER MAINTENANCE NOTES**

CONTRACTOR SHALL FLUSH ALL DRAINAGE PIPES AND REMOVE ALL SEDIMENT FROM EXISTING CATCH BASINS AND PIPES IN THE STORMWATER FILTER SYSTEM.

ROCK/PLANT FILTER HEADER PIPES AND ROCK GABIONS SHALL BE FLUSHED TO REMOVE ALL SEDIMENT. HEADER PIPES MAY REQUIRE MECHANICAL ROTO-ROOTING EQUIPMENT TO REMOVE COMPACTED SOIL IN PIPES. THE CONTRACTOR SHALL PREVENT ALL DISCHARGE OF TURBID OR OTHERWISE POLLUTED WATER FROM THE SITE. FLUSHING WATER SHALL BE CONTAINED, MANAGED, AND TREATED AS NECESSARY TO MEET PERMIT REQUIREMENTS AND WATER QUALITY STANDARDS.

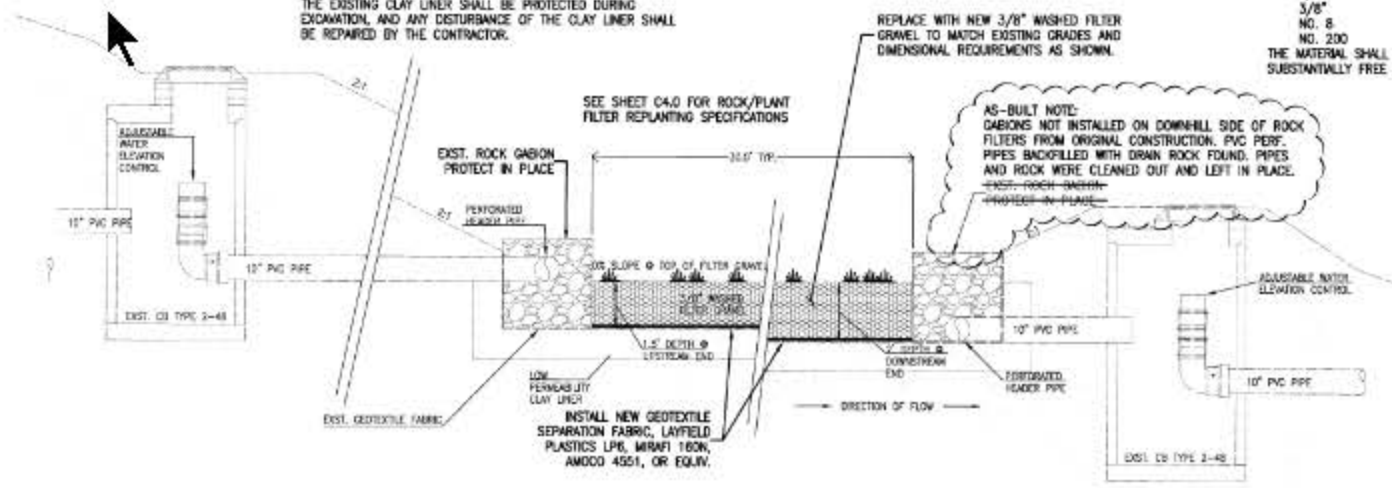
THE EXISTING CLAY LINER SHALL BE PROTECTED DURING EXCAVATION, AND ANY DISTURBANCE OF THE CLAY LINER SHALL BE REPAIRED BY THE CONTRACTOR.

**FILTER GRAVEL NOTES:**

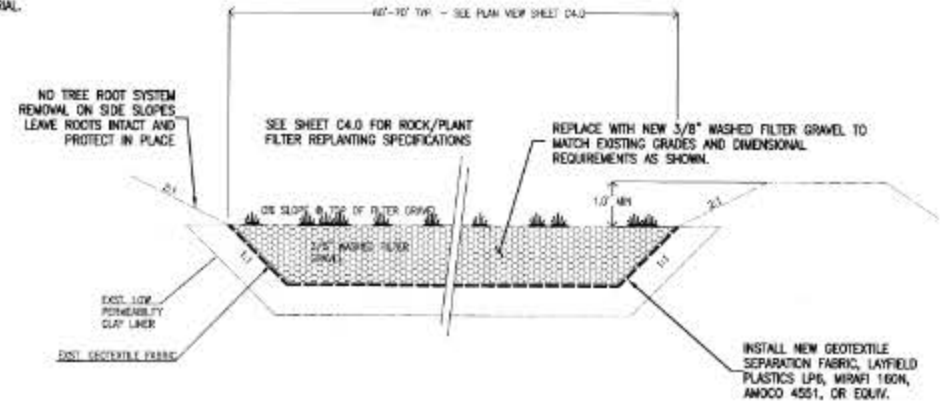
FILTER GRAVEL SHALL CONSIST OF SUPPLYING AND PLACING 3/8" P.C.A. GRAVEL AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. THE MATERIAL SHALL MEET THE FOLLOWING GRADING REQUIREMENTS:

SIEVE SIZE	% PASSING (BY WT)
3/4"	100
3/8"	95-100
NO. 8	0-4
NO. 200	0-2

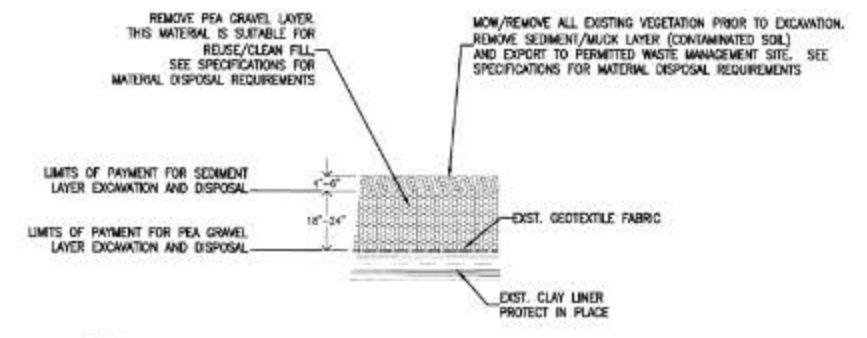
THE MATERIAL SHALL BE UNIFORM IN QUALITY AND SUBSTANTIALLY FREE FROM EXTRANEIOUS MATERIAL.



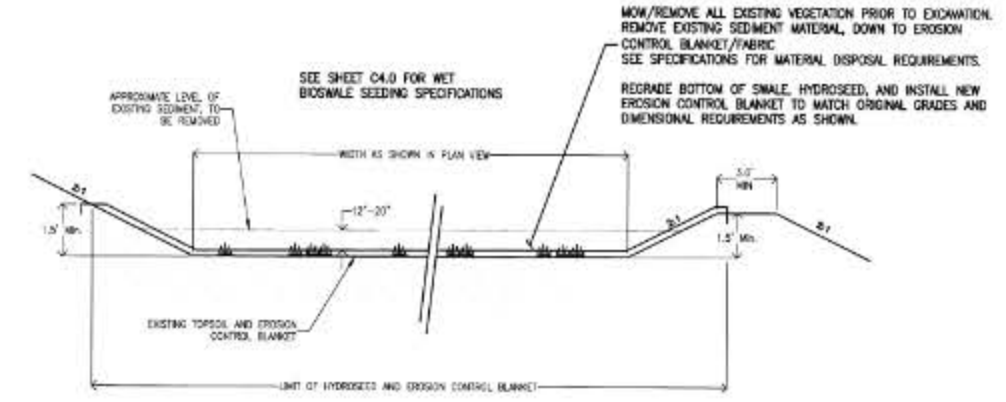
**A** TYPICAL ROCK/PLANT FILTER PROFILE  
C5.0 N.T.S. (SHORT DIMENSION)



**B** TYPICAL ROCK/PLANT FILTER SECTION  
C5.0 N.T.S. (LONG DIMENSION)



**C** ROCK/PLANT FILTER EXCAVATION DETAIL  
C5.0 N.T.S.



**D** TYPICAL WET BIOSWALE CROSS SECTION  
C5.0 N.T.S.



REV.	DATE	DESCRIPTION	BY



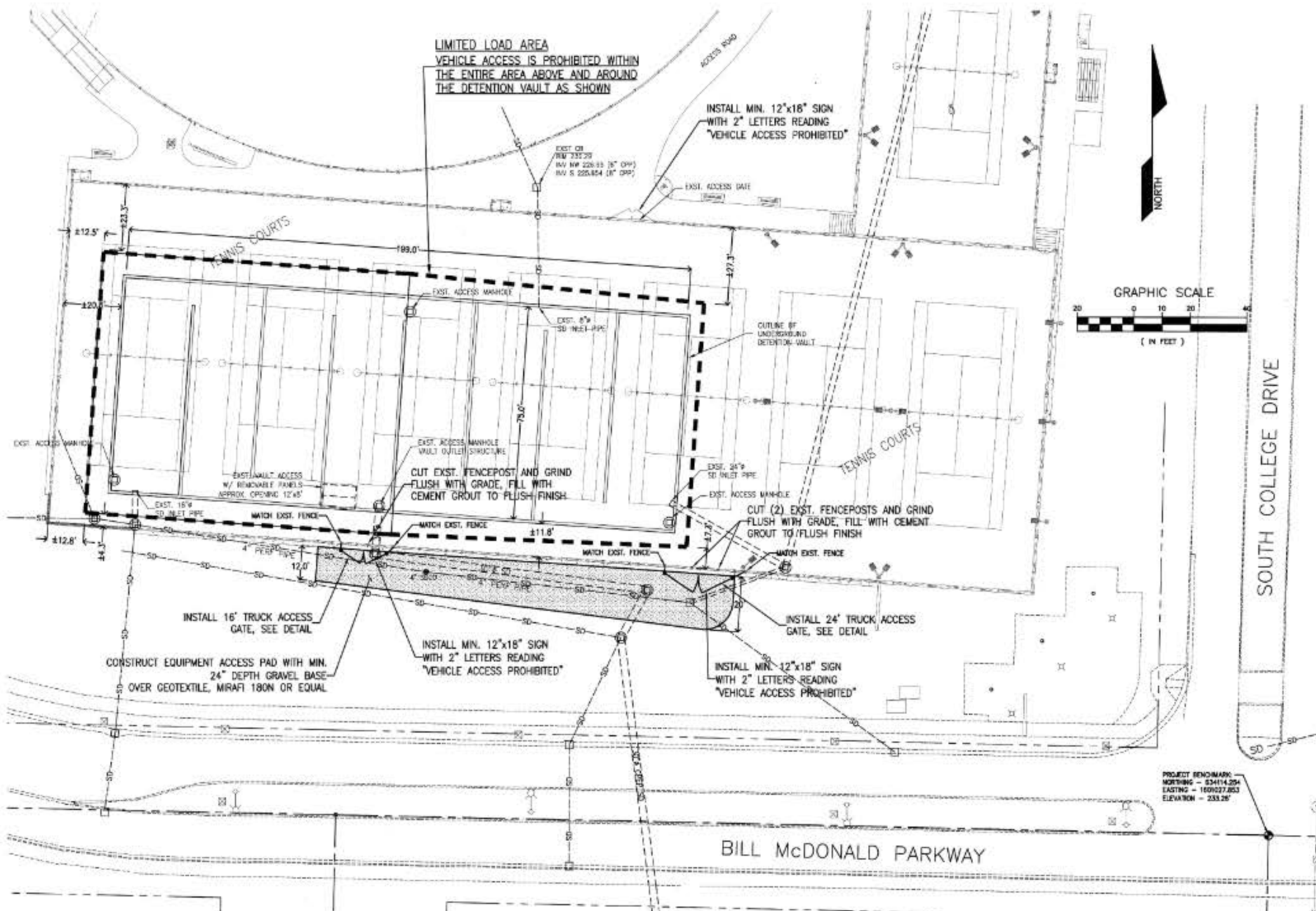
PW656 - STORMWATER DETENTION FACILITY RESTORATION WATER QUALITY FACILITY DETAILS			
Client Name	Microbial Review	Microbial Review	Approval
Designed by	Drawn by	Project Manager	Checked

Building/Zone	UT
Sheet #	5 of 13
Job Number	C5.0
Worksheet Number	PW656
Worksheet Name	N4816





Att-191



**DETENTION VAULT ACCESS NOTES**

1. The location of the underground detention vault and all underground pipes, structures and utilities are shown based on the as-built drawings from WWU projects PW-208A and OW-393. The location of aboveground features including the tennis court facility and surrounding area are shown based on the as-built drawings for WWU project PW-497. Actual site features and the locations of underground structures may vary, and shall be field verified by the Contractor as needed to complete the work.
2. Vehicle access is PROHIBITED within the entire area above and around the underground stormwater detention vault as shown on the plans. Equipment and vehicle access and any loads from equipment or vehicles shall be limited to the area lying beyond the limited load area at all times. The contractor shall erect safety fencing or other temporary high-visibility measures and signage around the vault perimeter as needed to ensure compliance with this requirement.
3. The existing tennis court facility, including pavement, fencing, tennis nets and all other existing features of the site shall be protected by the Contractor throughout construction to prevent damage to these facilities as a result of equipment access or completion of the work.
4. The Contractor shall provide a system of protection for the tennis court pavement system that is adequate to protect the pavement and surfacing from damage or wear during construction operations.

REV	DATE	DESCRIPTION



PW656 - STORMWATER DETENTION FACILITY RESTORATION ALT. 3: DETENTION VAULT ACCESS PLAN		Approved by Date: 10/25/2012
Checked by Date: 10/25/2012	Reviewed by Date: 10/25/2012	Project Manager Date: 10/25/2012

**DETENTION VAULT - SITE ACCESS PLAN**  
Scale: 1 Inch = 20 Feet

AS-BUILT - RECORD DRAWINGS  
OCTOBER 2012

Building/Zone	UT
Sheet #	6 of 13
Job Number	PW656
Version Number	1/8/12





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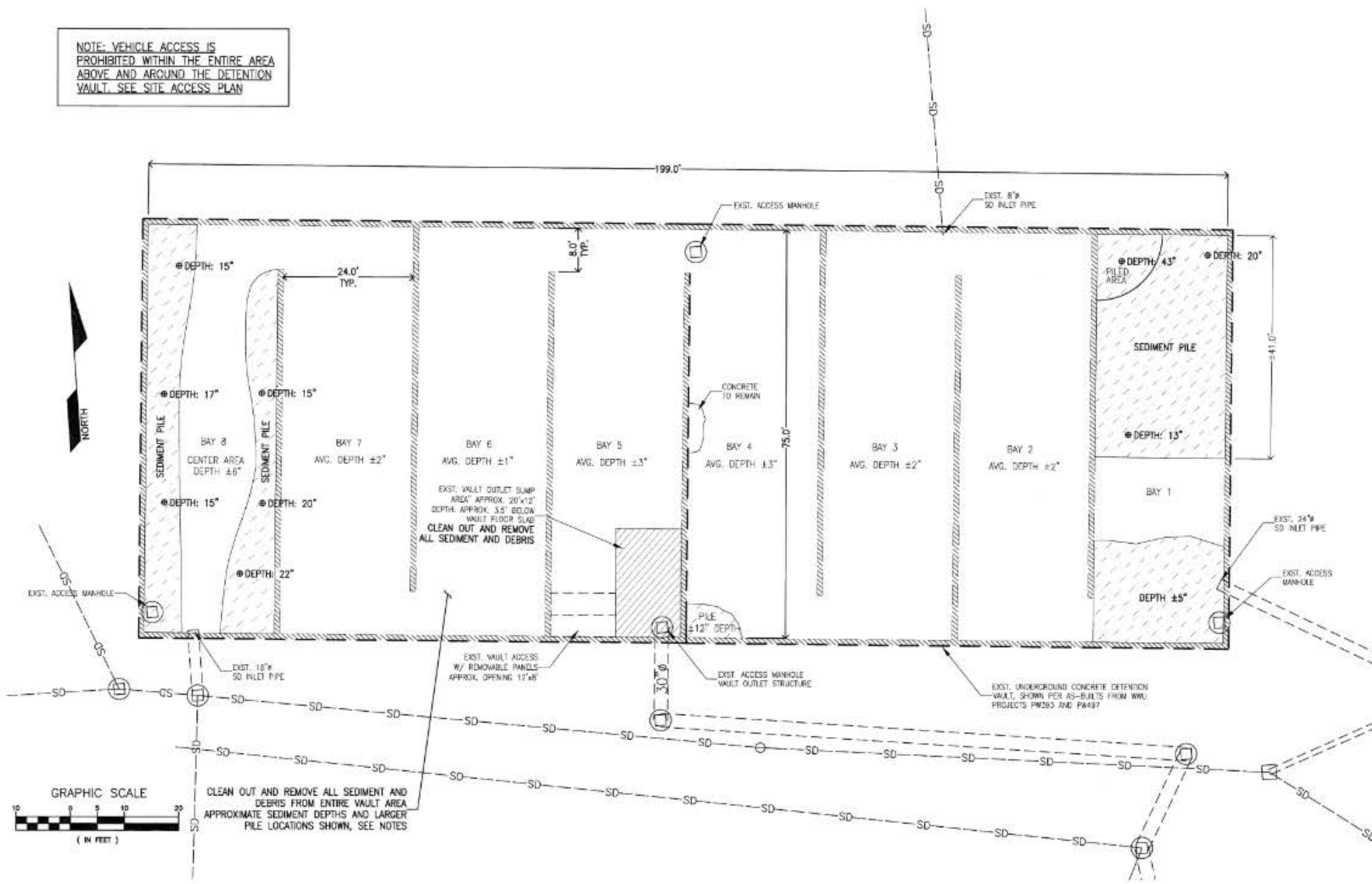


NOTE: VEHICLE ACCESS IS PROHIBITED WITHIN THE ENTIRE AREA ABOVE AND AROUND THE DETENTION VAULT. SEE SITE ACCESS PLAN

DESCRIPTION OF WORK

- THE CONTRACTOR SHALL COMPLETE THE FOLLOWING WORK:
1. REMOVE ALL SEDIMENT MATERIAL AND DEBRIS FROM THE DETENTION VAULT, AND DISPOSE OF THE MATERIAL AT A PERMITTED SITE APPROVED TO ACCEPT CONTAMINATED MATERIAL IN ACCORDANCE WITH SECTION 310500.
  2. THE SITE PLAN SHOWS THE ESTIMATED AND APPROXIMATE AREAS AND DEPTHS OF SEDIMENT MATERIALS WITHIN THE VAULT, AS MEASURED ON FEBRUARY 7, 2012. QUANTITIES AND LOCATION OF SEDIMENT MAY VARY AT THE TIME OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO EVALUATE THE SEDIMENT QUANTITY, LOCATIONS, AND CONDITION AT THE PRE-BID WALKTHROUGH.
  3. DRAIN AND DEWATER THE DETENTION VAULT AS NEEDED TO ACCOMPLISH THE WORK, INCLUDING MANAGEMENT OF ALL WATER DRAINED OR REMOVED FROM THE VAULT AND COMPLIANCE WITH WATER QUALITY STANDARDS.
  4. THE CONTRACTOR MAY DIRECT SEDIMENT AND SEDIMENT LADEN WATER TO THE WATER QUALITY FACILITY UPPER BIOSWALE CELLS, PROVIDED THAT:
    - A. THE BIOSWALE OUTLET IS PLUGGED AND THE WATER IS MANAGED TO CONTAIN WATER AND SEDIMENT WITHIN THE SWALE. THE CONTRACTOR SHALL ENSURE THAT NO DISCHARGE OF TURBID OR OTHERWISE POLLUTED WATER SHALL OCCUR.
    - B. ONE OF THE TWO TREATMENT TRAINS (EAST OR WEST) WITHIN THE WATER QUALITY FACILITY MUST BE KEPT OPERATIONAL AT ALL TIMES.
    - C. THE CONTRACTOR SHALL REMOVE AND MANAGE THE SEDIMENT MATERIAL DEPOSITED IN THE BIOSWALE IN ACCORDANCE WITH THESE PLANS AND THE PROJECT SPECIFICATIONS.
    - D. THE CONTRACTOR SHALL CLEAN OUT ALL PIPES AND STRUCTURES WHERE SEDIMENT FROM THE OPERATION IS DEPOSITED.

REV	DATE	DESCRIPTION	BY



DETENTION VAULT MAINTENANCE NOTES

1. The existing underground stormwater detention vault is active and continuously receives runoff from the WWU South Campus Basin. The estimated minimum dry season base flow entering the vault through the existing conveyance pipes is approximately 25-gpm. This represents the minimum expected flow rate for ideal conditions, and the flow rate may be significantly higher. Any rain event will increase the flow rate substantially. The contractor shall prepare a contingency plan for managing high flow rates and large volumes of storm water.
2. The underground detention vault is a Confined Space, and all safety provisions and measures shall be in compliance with applicable regulations regarding Confined Space Access. For work outside the hours of 8 am - 4:30 pm Monday-Friday the Contractor shall provide a rescue team meeting the requirements of WAC 296-809-50014 at no added cost to the Owner. See Section 013523 of the Specifications for additional requirements.
3. The sediment materials to be removed from the detention vault are considered to be Contaminated Waste, and shall be handled in accordance with Section 310500 of the Specifications.

DETENTION VAULT MAINTENANCE - SEDIMENT REMOVAL PLAN  
Scale: 1 Inch = 10 Feet



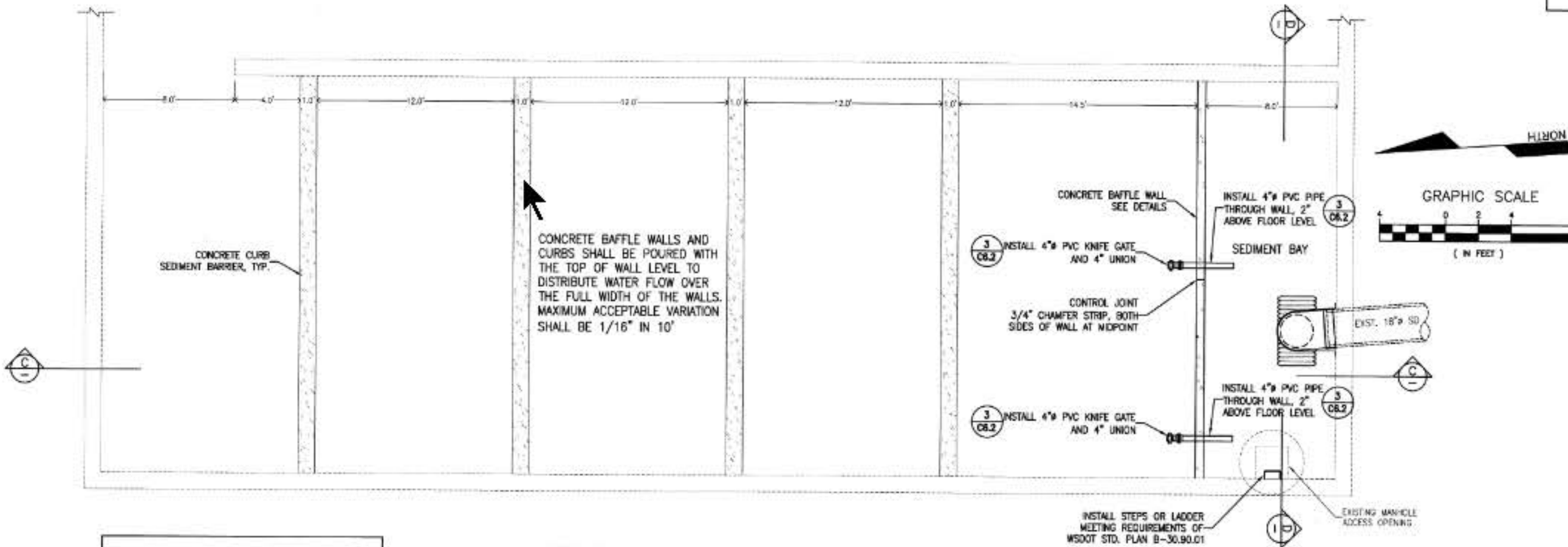
PW656 - STORMWATER DETENTION FACILITY RESTORATION			
ALT. 3: DETENTION VAULT SEDIMENT REMOVAL			
Client Name	Submitted/Revised	Approved By	Date
			10/05/2012

Building Code	UT
Sheet #	11 of 12
	C6.1
	PW656
	N4818



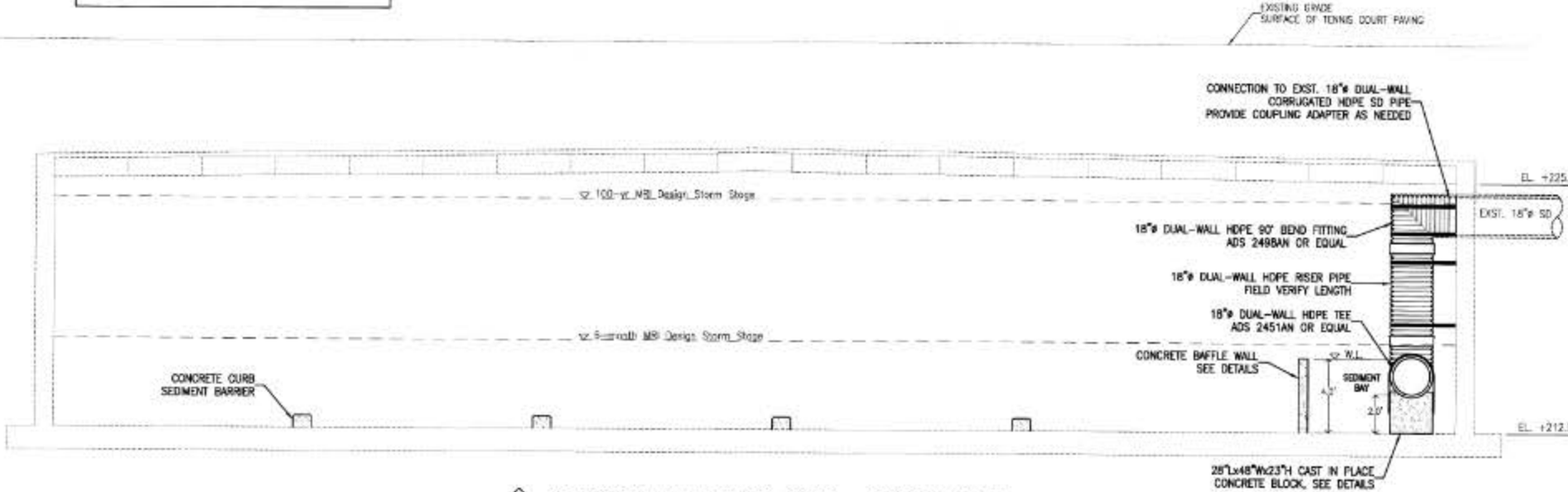


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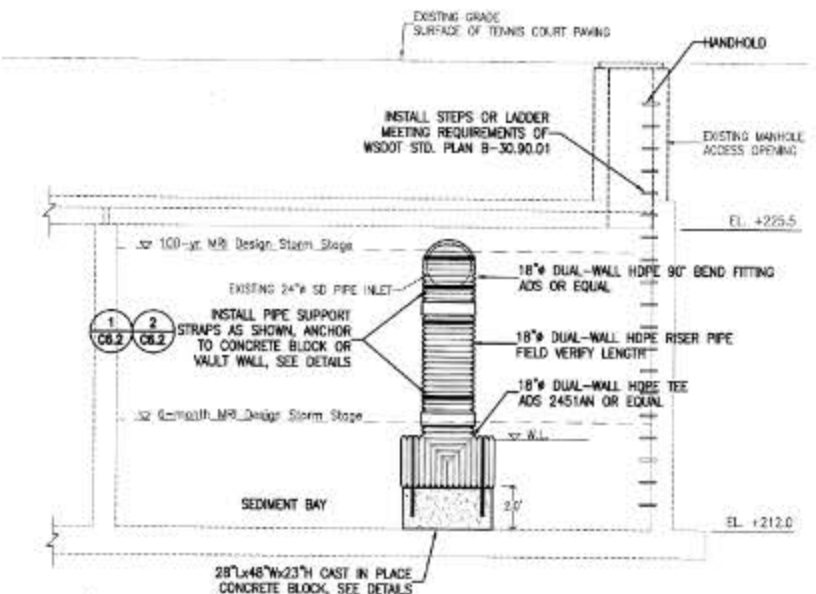


NOTE: VEHICLE ACCESS IS PROHIBITED WITHIN THE ENTIRE AREA ABOVE AND AROUND THE DETENTION VAULT. SEE SITE ACCESS PLAN

DETENTION VAULT WEST INLET - PLAN VIEW  
Scale: 1 Inch = 4 Feet



DETENTION VAULT WEST INLET - SECTION C-C  
H & V Scale: 1 Inch = 4 Feet



DETENTION VAULT WEST INLET - SECTION D-D  
H & V Scale: 1 Inch = 4 Feet

REV	DATE	DESCRIPTION

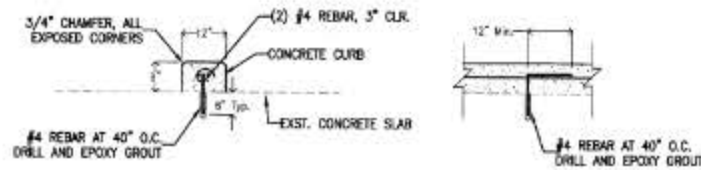


PW656 - STORMWATER DETENTION FACILITY RESTORATION ALT. 3: DETENTION VAULT - WEST INLET	Approved by: [Signature]	Date: 10/15/2012
Checked by: [Signature]	Designed by: [Signature]	Drawn by: [Signature]

AS-BUILT - RECORD DRAWINGS  
OCTOBER 2012

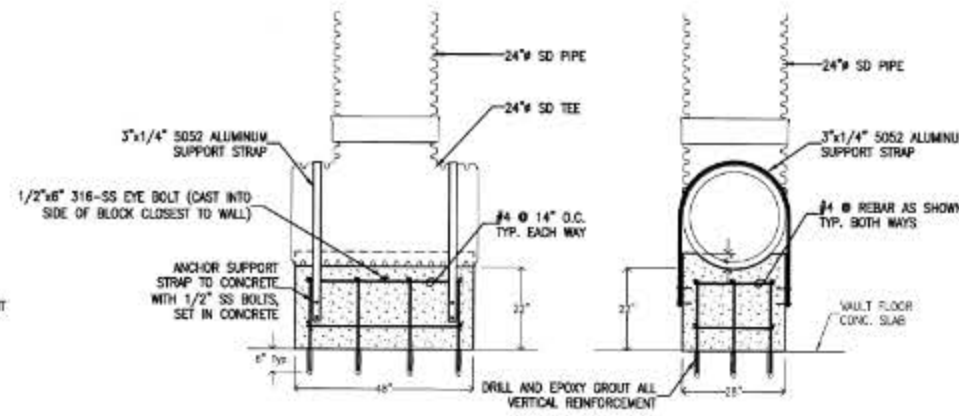
Building Zone	UT
Sheet #	13 of 13
Job Number	C6.3
Project Name	PW656
Record Number	N4820





**CONCRETE CURB SEDIMENT BARRIER**

H & V Scale: 1 Inch = 2 Feet

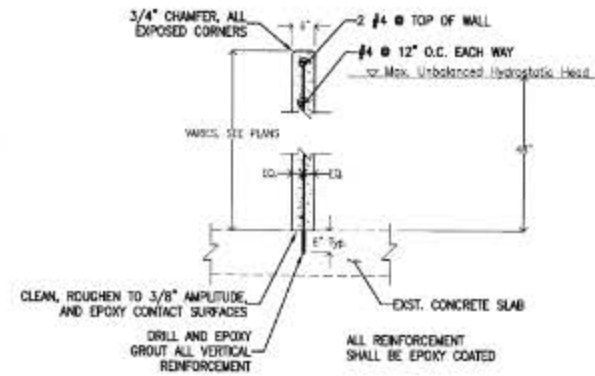


**INLET PIPE SUPPORT DETAIL**

Scale: 1 Inch = 2 Feet

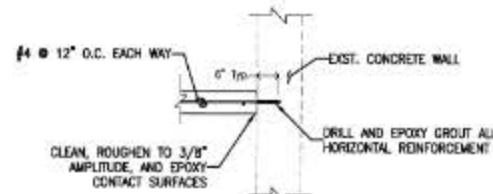
**AT EACH PIPE INLET PROVIDE:**

- 316-SS EYE BOLT CAST INTO SUPPORT BLOCK ON SIDE CLOSEST TO WALL (SEE DETAIL)
- (2) 8' LENGTHS OF 1/2" 316-SS CHAIN
- (3) 316-SS 3" LOCKING CARABINER
- (1) HOPE PIPE END PLUG, ADS 2433AA OR APPROVED EQUAL
- (1) HOPE PIPE END PLUG, ADS 2433AA OR APPROVED EQUAL, TAPPED WITH 4" INSERT-A-TEE WITH 4" PVC PLAIN END



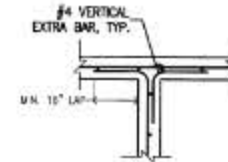
**CONCRETE BAFFLE WALL DETAIL**

Scale: 1 Inch = 2 Feet



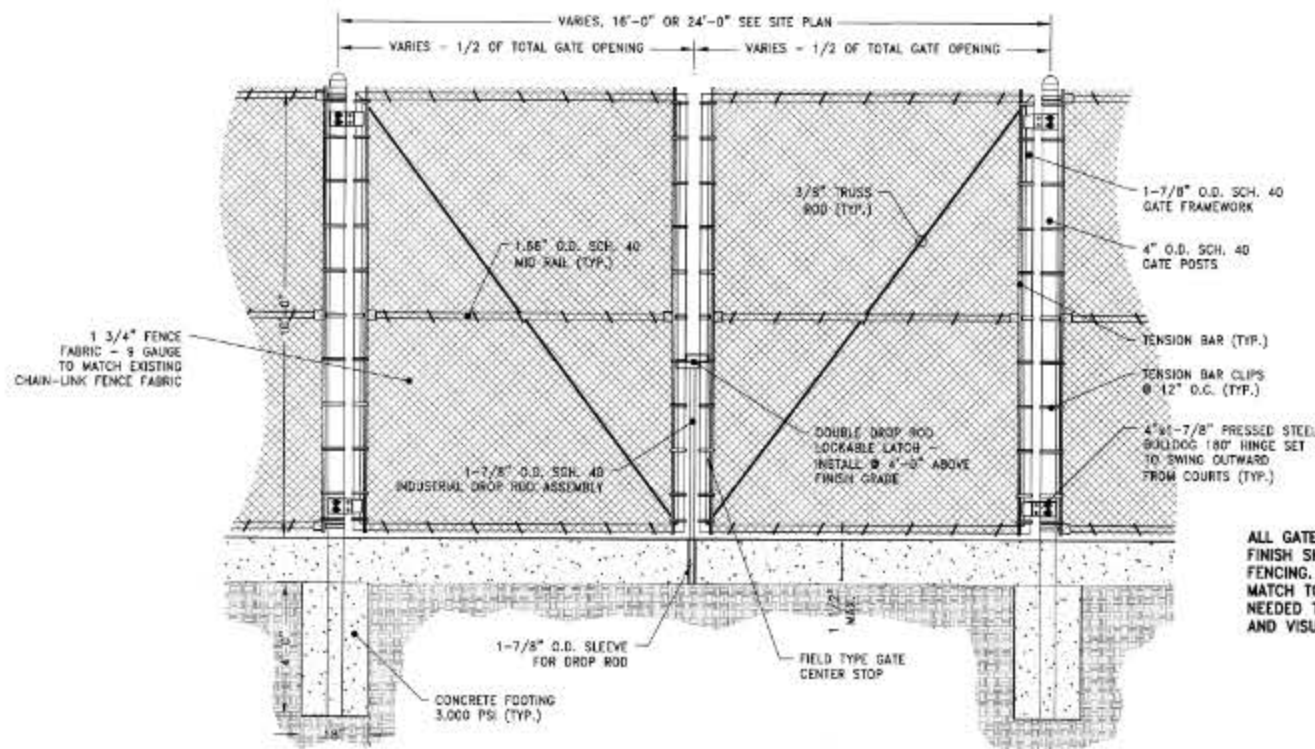
**CONCRETE WALL END DETAIL (PLAN VIEW)**

Scale: 1 Inch = 2 Feet



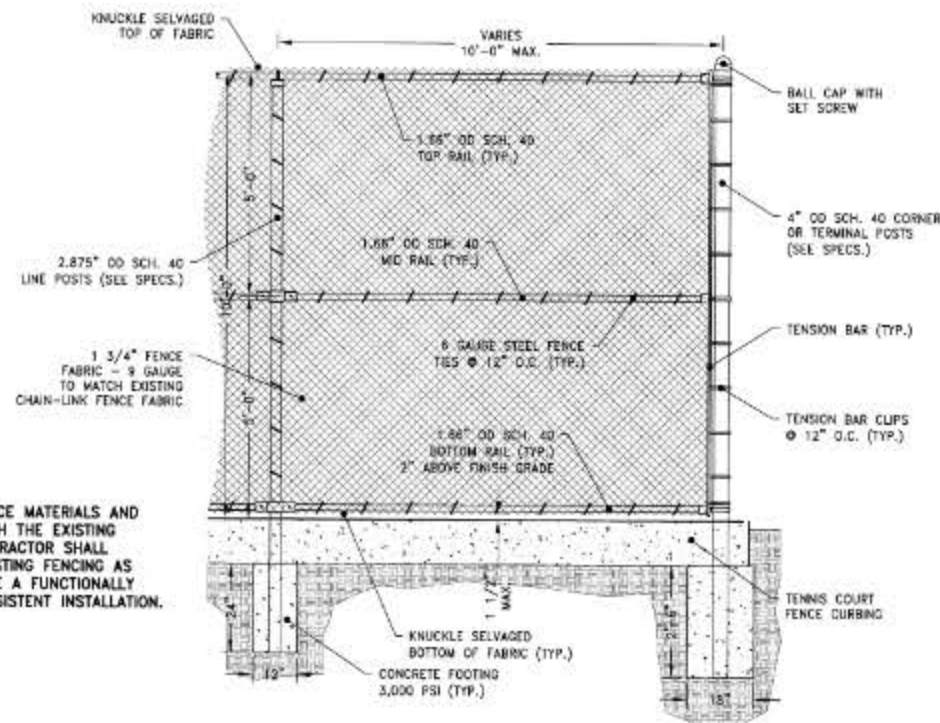
**CONCRETE WALL CORNERS**

Scale: 1 Inch = 2 Feet



**TRUCK ACCESS GATE**

N.T.S.



**10' CHAINLINK FENCE**

N.T.S.

ALL GATE AND FENCE MATERIALS AND FINISH SHALL MATCH THE EXISTING FENCING. THE CONTRACTOR SHALL MATCH TO THE EXISTING FENCING AS NEEDED TO PROVIDE A FUNCTIONALLY AND VISUALLY CONSISTENT INSTALLATION.



Att-19L



REV	DATE	DESCRIPTION	BY



PW656 - STORMWATER DETENTION FACILITY RESTORATION  
ALT. 3: DETENTION VAULT - DETAILS

Client/Owner	Major/Minor/Phase	Reviewed/Checked	Approved/By

Building/Zone	UT
Sheet #	C6.4
Job Number	PW656
Master Number	N4821

AS-BUILT - RECORD DRAWINGS  
OCTOBER 2012