AGENDA

1. Call Meeting to Order.
   
   Documents:
   
   PWUC Memo January 2019.pdf

2. Review and approve minutes from November 12th, 2018 meeting.
   
   Documents:
   
   PW111218md.pdf

3. Review and possible recommendation of bid for Watertown Plank Road Pedestrian Pathway

4. Update on AES Tonawanda Wetland Restoration Project

5. Update on Underwood Creek Daylighting Project
   
   Documents:
   
   EG UC Daylighting_193804489_Plans_Jan 10 2019.pdf

6. Update on Public Works Projects

7. Other Business

8. Adjourn

Any person who has a qualifying disability as defined by the Americans with Disabilities Act who requires that the meeting or materials for the meeting has to be in an accessible location or format must contact the Village Clerk, Mary S. Stredni, at 262-782-6700 or 13600 Juneau Boulevard by 3:00 PM Friday prior to the meeting so that any necessary arrangements can be made to accommodate your request.
NOTICE: It is possible that members of, and possibly a quorum of, other governmental bodies of the Village may be in attendance at the above stated meeting to gather information. No action will be taken by any governmental body at the above stated meeting other than the governmental body specifically referred to in the above notice.
Memo

To: Public Works/Utilities Committee
From: David De Angelis, Village Manager, Richard Paul Jr., Public Works Director
Date: January 25, 2019
Re: Public Works Agenda January Meeting

Item 3: Review and possible recommendation of bid for Watertown Plank Road Pedestrian Pathway
Included in your packet materials will be a bid summary and recommendation from Ruekert-Mielke for the Pathway Project bid opening that took place on Thursday, January 24th, 2019. The committee should review the recommendation and then consider recommendation to the Board of Trustees.

Item 4: Update on AES Tonawanda Wetland Restoration Project
The permits were finally received for the project to move forward. Right now it’s a matter of weather and when the contractor can mobilize to get started on the project.

Item 5: Update on Underwood Creek Daylighting Project
Included in your packet is the 90% plans that are still in review by Village Staff. No action necessary at this time.

If you have any questions prior to Monday’s meeting please do not hesitate to call.
1. Roll call.
Meeting was called to order at 6:00 pm by Mr. Kressin

Present: Mr. Kressin, Mr. Haas, Mr. Coons, Mr. Casperson, Mr. Jacobsen, Mr. Harley and Mr. Domaszek.

Absent: None

Also Present: Mr. De Angelis and Mr. Paul

2. Review and act on Minutes from the August 22nd, 2018 Meeting
Mr. Haas moved and Mr. Domaszek seconded to approve the August 22nd, 2018 Meeting minutes. Motion carried 7-0.

3. Update on Watertown Plank Rd Pedestrian Pathway
Mr. De Angelis explained to the committee a few of the adjustments that were made to the pathway in regards to moving the path a bit further away from the ROW line in areas, as well as the fact that the property owner at the corner of Highland Dr and Watertown Plank Rd has been very cooperative with discussion about modifications to the landscape in her private property to allow for a reasonable “off street” pathway that would still remain within the ROW.

Mr. Kressin requested that R-M confirm that the concrete landings and detectable warning fields would still be required if this project is classified as a pathway vs. a sidewalk. The committee agreed that would be a great point to confirm as it could adjust the cost of the pathway around $28,000.

Lastly, Mr. Kressin asked that R-M provide a couple of options for an off-road path in the area between Katherine Dr and Shadow Lawn understanding that more pavement would have to be cut back to buffer the pathway better. This area would affect 3-4 properties.

4. Update on AES Tonawanda Wetland Restoration Project
Mr. De Angelis explained that the contractor has wrapped up their last project at Old Willow Creek in a neighboring community and was scheduled to start this project in November, however the Army Corps of Engineers is holding up the permit due to further investigation of a “Cultural Review” of the area. Once this is cleared it is hopeful that AES can still get their crew started in the area weather permitting.

5. Update on Underwood Creek Daylighting
Mr. De Angelis informed the committee that he has been going back and forth on the change order request for the additional work that Stantec is claiming they need to charge for in regards to the parking lot revisions, etc. Mr. Kressin asked that Stantec submits the final set of plans ASAP as it was due back in June.

Mr. De Angelis has been in communication with Stantec and will follow up again the week of November 19th.

6. Update on Public Works Projects
Mr. Paul informed the committee that the crack sealing project for 2018 was going to be finished up in the next day.

5. Other business
None.

6. Adjourn.
Mr. Domaszek moved and Mr. Jacobsen seconded to adjourn. Motion carried 7-0. Meeting adjourned at 6:36 pm.

Respectfully Submitted,

Richard Paul, Jr., Public Works Director
General Notes: Wall Street Concrete Arch Culvert

1. Culvert shall be Contech ConSpan #2399 or approved equal.

2. Concrete formliner on culvert headwalls:
   - Formliner surface shall be stained following construction such that coloring is similar to the masonry coloring on the Watertown Plank Road Bridge parapet wall.
   - Contractor shall provide construction drawings for the culvert and headwall system used developed and sealed by a qualified structural engineer licensed in Wisconsin.
   - Culvert shall be Contech ConSpan O329 or approved equal.

3. Railing on culvert headwalls:
   - Railing shall be similar in appearance to the railing on the Watertown Plank Road Bridge parapet wall where Watertown Plank Road crosses Underwood Creek in downtown Elm Grove near 13440 Watertown Plank Road.
   - Contractor to provide sample(s) for Owner approval prior to application.

4. Allowable soil bearing capacity for foundation design:
   - Contractor shall use 2,000 psf (pounds per square foot) as the presumptive allowable soil bearing capacity for bidding purposes.
   - Contractor shall verify appropriate allowable soil bearing capacity prior to construction by conducting their own borings and/or by review of exposed excavations by a qualified geotechnical engineer licensed in Wisconsin.

5. Culvert design loadings:
   - Culvert shall be designed for HL-93 traffic loading.

6. Contractor shall provide construction drawings for the culvert and headwall system used developed and sealed by a qualified structural engineer licensed in Wisconsin.

General Notes: Retaining Walls

1. Retaining walls shall be Red-Rock or approved equal:
   a. Ledgestone face texture.
   b. Retaining wall surface shall be stained following construction such that coloring is similar to the masonry coloring on the Watertown Plank Road Bridge parapet wall where Watertown Plank Road crosses Underwood Creek in downtown Elm Grove near 13440 Watertown Plank Road. Contractor to provide sample(s) for Owner approval prior to application.
   c. Standard batter.
   d. Refer to soil boring logs included in project manual for foundation and retained soil descriptions. Contractor shall verify soil properties prior to construction by conducting their own borings and/or by review of exposed excavations by a qualified geotechnical engineer licensed in Wisconsin.

2. Any block that has a portion of the outside face above ground surface shall have a textured surface on both sides (i.e. free-standing block).

### SECTION AND DETAIL TITLES

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### SECTION AND DETAIL REFERENCE (WHERE TAKEN AND SHOWN)

- **SECTION (LETTER) OR DETAIL (NUMERICAL) DESIGNATION:**
  - **SYMBOL, WHERE TAKEN OR DETAIL IS SHOWN:**
  - **DRAWING NUMBER WHERE SECTION OR DETAIL IS SHOWN:**
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GENERAL NOTES

1. EXISTING UTILITIES SHOWN ARE INDICATED IN ACCORDANCE WITH AVAILABLE RECORDS. OTHER UTILITIES MAY ALSO BE PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING EXACT LOCATIONS AND ELEVATIONS OF ALL UTILITIES FROM THE OWNERS OF THE RESPECTIVE UTILITIES. ALL UTILITY OWNERS SHALL BE NOTIFIED BY THE CONTRACTOR A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO EXCAVATION.

2. ALL UTILITY ELEVATIONS ARE SHOWN AS INVERT ELEVATIONS UNLESS OTHERWISE NOTED.

3. INVERT ELEVATIONS ARE AT THE CENTERLINE OF THE STRUCTURE UNLESS OTHERWISE NOTED.

4. LIMITS OF CONSTRUCTION AREA SHALL BE FENCED PRIOR TO COMMENCEMENT OF WORK.

5. DEMOLITION OF THE ONE-HOUR MARTINIZING BUILDING SHALL BE COMPLETED BY OTHERS.

6. CONSTRUCTION SEQUENCE: CONSTRUCT NEW CHANNEL FROM DOWNSTREAM END TO APPROXIMATELY STN D+75, INCLUDING NEW CULVERT AT WALL STREET. CONSTRUCT PLUNGE POOL AND CHANNEL SECTION IMMEDIATELY DOWNSTREAM OF WATERTOWN PLANK ROAD. COMPLETE CONNECTION TO NEW CHANNEL, AND TRANSFER STREAM FLOW TO NEW CHANNEL. CONSTRUCT NEW PARKING LOT STORM SEWERS. COMPLETE DEMOLITION OF EXISTING PARKING LOT UNDERWOOD CREEK CULVERT. COMPLETE CONSTRUCTION OF STONE WEIR AT DOWNSTREAM END OF PROJECT.

SURVEY CONTROL AND ALIGNMENT DATA

1. ALL COORDINATES ARE BASED ON WISCONSIN STATE PLANE COORDINATE SYSTEM SOUTH ZONE (NAD27), AND ALL BEARINGS AND DISTANCES SHOWN ARE GROUND NGVD29.
THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE THE DRAWING - ANY ERRORS OR OMISSIONS SHALL BE REPORTED TO STANTEC WITHOUT DELAY.

THE COPYRIGHTS TO ALL DESIGNS AND DRAWINGS ARE THE PROPERTY OF STANTEC. REPRODUCTION OR USE FOR ANY PURPOSE OTHER THAN THAT AUTHORIZED BY STANTEC IS FORBIDDEN.

12075 N. Corporate Parkway, Suite 200
Mequon, WI 53092
www.stantec.com

NAME | DESCRIPTION
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C | CHANNEL ALIGNMENT
R | WALL STREET ALIGNMENT
W1 | RETAINING WALL 1 ALIGNMENT
W2 | RETAINING WALL 2 ALIGNMENT
W3 | RETAINING WALL 3 ALIGNMENT
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NOTE:
1. CONSTRUCTION SITE ACCESS AND HAUL ROUTES SHALL BE LIMITED TO WALL STREET AND ELM GROVE ROAD.

- VILLAGE OWNED - VILLAGE OWNED PROPERTY
- VILLAGE ACQUISITION - PROPERTY ANTICIPATED TO BE VILLAGE-OWNED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- TLE - TEMPORARY EASEMENT FOR CONSTRUCTION, STAGING, AND TEMPORARY MATERIAL STORAGE DURING CONSTRUCTION.

LEGEND
- VILLAGE OWNED
- VILLAGE ACQUISITION
- TLE
EROSION CONTROL PLAN

GENERAL NOTES
1. Contractor shall conform to all relevant federal, state, and local regulations; the conditions included in any permit, and to the conditions included in the project engineer's plans unless otherwise approved by the Wisconsin Department of Natural Resources (WDNR) and project engineer.
2. Erosion control devices shall conform to the latest edition of the WDNR technical standards and WI DOT Product Acceptability List (PAC).
3. A copy of the erosion control plan and permits shall be kept onsite and available for inspection throughout the duration of the project. Submit plans revisions or amendments to the WDNR around 3 days prior to field implementation. The contractor shall not use any equipment or fill placed in a waterway or wetland, except as approved by WDNR permit. The contractor shall not erect any monument or marker in any waterbody, box culvert, or wetland.
4. The tracking pad shall be removed or extended prior to the completion of the project. tracking pad shall extend the full distance of the egress point.
5. Use, storage and disposal of chemicals, oil & grease, cement and other compounds and materials used in the construction site shall be managed during the construction period to prevent their transport by runoff into water bodies in the event of any spill notification shall be immediately reported to the WDNR and local authorities. All construction material and equipment shall be properly stored in a suitable non-wetland area.
6. Interim Manufactured Perimeter Control shall be removed when all land disturbing construction activities have been completed along its associated ditch, non-wetland or floodplain area and stabilized.
7. Interim Manufactured Perimeter Control that is damaged or not performing as designed shall be repaired or replaced immediately.
8. Inlet fabric shall be replaced as needed.

EROSION CONTROL INSTALLATION AND SEQUENCING
1. The project is a stream daylighting project on Underwood creek.
2. Tracking pad, inlet protection, stone-ditch checkers, and interim manufactured perimeter controls shall be installed prior to any land disturbing construction activities.
3. Once the temporary erosion control devices have been installed, construct portions of channel not connected to the existing box culvert and channel oriented stabilizer.
4. Upon completion of construction and grading within a particular new channel section, seed and mulch shall be immediately applied to any disturbed areas before proceeding to the next section, as feasible.
5. Construct arch culvert at new Wall Street crossing.
6. Biocillafil channel and existing box culvert and cap.
7. Construct remaining channel connecting entire reach in low flow/winter conditions.
8. Any accumulated sediment in the above ditch check areas shall be removed and properly disposed of in an upland area before completion of backfiling.
9. A copy of the erosion control plan and permits shall be kept onsite and available for inspection throughout the duration of the project. Submit plan revisions or amendments to the WDNR at least 5 days prior to field implementation.
10. Permanent stabilization (erosion matting and final landscaping) shall occur after final grading, of any areas that were temporarily stabilized.

REMOVAL OF EROSION CONTROL MEASURES
1. Inlet Protection Devices shall be removed when all land disturbing construction activities have been completed and the site has reached final stabilization. Final stabilization is defined as an established uniform permanent vegetative cover with an overall cover density of at least 70%.
2. Stone-ditch checkers shall be removed when all land disturbing construction activities have been completed and the area has reached final stabilization. Any soil disturbance that has occurred because of its removal shall be immediately stabilized.
3. Tracking Pad shall be removed when all land disturbing construction activities have been completed along the associated erosion pad. Any soil disturbance that has occurred as a result of the removal shall be immediately stabilized.
4. Interim Manufactured Perimeter Control shall be removed when all land disturbing construction activities have been completed and the area has reached final stabilization. Any soil disturbance that has occurred because of its removal shall be immediately stabilized.

EROSION CONTROL INSPECTION AND MAINTENANCE
1. Inspect all erosion control measures prior to commencing grading activities. Erosion control measures shall be inspected weekly and within 24 hours of every 1/2 inch or greater rain event. Maintenance shall be in accordance with the WDNR technical standards and the engineer's plans and specifications and as deemed necessary by regulatory agencies. Inspect reports provide in real-time and available upon request. All maintenance and/or repairs shall be completed within 24 hours of notification by the erosion control inspector. The contractor shall maintain an erosion control log book on site noting inspection dates and repairs necessary, and repairs made.
2. The contractor shall install and maintain the erosion control measures in accordance with WDNR technical standards and as follows:
   A. Tracking Pad (1952): Maintenance shall take place by scraping and top-dressing with additional aggregates. A minimum 50 mm Femorite and 100 mm rock casings of a minimum of 2 inch chain witted stone shall be maintained. The width of the tracking pad shall extend the full distance of the aggregate. stream.
   B. Inlet protection (1960): Maintenance shall be conducted to keep data functioning without ponding water for ponding periods not exceeding 24 hours.
   C. Stone Ditch Checks (1962): shall be inspected following rain events and shall be maintained and repaired as needed in accordance with the WDNR technical standard 1962.
   D. Interim Manufactured Perimeter Control (1971): Sediment stabilization diets shall be removed when they reach 50% of the height of the woven manufactured perimeter controls. Removed sediment shall be deposited in a suitable non-wetland or floodplain area and stabilized. Interim Manufactured Perimeter Control that is damaged or not performing as
THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE THE DRAWING - FOR ANY PURPOSE OTHER THAN THAT AUTHORIZED BY STANTEC IS FORBIDDEN.

INLET PROTECTION
STONE TRACKING
MATERIAL STORAGE AREA
INLET PROTECTION TYPE D (1060)
IMPC (INTERIM MANUFACTURED PERIMETER CONTROL) (1071)
WATERTOWN PLANK RD.
STORAGE AREA
SIDEWALK
GAS WELL
SAMPLING CLVT
WELL
GAS
BACKFILL BOX CULVERT
IMPC (1071)
CANADIAN PACIFIC RR
GENERAL NOTES

1. TRENCH SHALL BE A MINIMUM OF 4' WIDE & 4' DEEP TO BURY AND BRANCH THE GEOTEXTILE FABRIC. TWO MATERIAL TO FIT TRENCH AND BRANCH & COMPACT TRENCH WITH ENCOURAGED SIDE.

2. WOOD POSTS SHALL BE MINIMUM SIZE OF 1-1/8" X 1-1/8" OF OAK OR HICKORY.

3. CONTINUOUS SILT FENCE FROM A CONTINUOUS ROLL OF FABRIC AT CUTTING LENGTHS TO AVOID JOINTS.


5. ADDITIONAL POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

SILT FENCE DETAIL

1. ATTACH THE FABRIC TO THE POSTS WITH WIRE STAPLES OR WOODEN LATH AND NAILS.

2. GEOTEXTILE FABRIC ONLY.

3. SUPPORT CONN ON WOODEN LATH OR WOODEN POST.

4. ATTACH THE FABRIC TO THE POSTS WITH WIRE STAPLES OR WOODEN LATH AND NAILS.

5. "NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED TO ENCOURAGE SEALS

6. GEOTEXTILE FABRIC ONLY.

TRENCH DETAIL

SILT FENCE TIE BACK

JOINING TWO LENGTH OF SILT FENCE

SILT FENCE TIE BACK

GENERAL NOTES

1. TRENCH SHALL BE A MINIMUM OF 4' WIDE & 4' DEEP TO BURY AND BRANCH THE GEOTEXTILE FABRIC. TWO MATERIAL TO FIT TRENCH AND BRANCH & COMPACT TRENCH WITH ENCOURAGED SIDE.

2. WOOD POSTS SHALL BE MINIMUM SIZE OF 1-1/8" X 1-1/8" OF OAK OR HICKORY.

3. CONTINUOUS SILT FENCE FROM A CONTINUOUS ROLL OF FABRIC AT CUTTING LENGTHS TO AVOID JOINTS.


5. ADDITIONAL POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.
GENERAL NOTES
INLET PROTECTION DETAILS

INLET PROTECTION DETAILS

INSTALLATION NOTES
TYPE B & C
TEST EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE. THE CONTRACTOR SHALL ENSURE ALL EXCESS FABRIC IS DISPOSED OF. INSTALLATION OF EXCESS FABRIC INTO THE INLET WOULD BE DANGEROUS IMMEDIATELY.

INLET PROTECTION, TYPE D
DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE. THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE BAG WALLS AND THE WALL, MEASURABLE AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE RECESSIVE THE CONTRACTOR SHALL ATTACH GEOTEXTILE FABRIC, TYPE FF TO THE STAKES AND CROSS BRACING.

USE REBAR OR STEEL ROD FOR REMOVAL OR FOR INLETS WITH CAST CURB BOX USE WOOD 2"x4", EXTEND 10" BEYOND GRATE WIDTH ON BOTH SIDES, LENGTH VARIES. SECURE TO GRATE WITH WIRE OR PLASTIC TIES.

ATTACH GEOTEXTILE FABRIC, TYPE FF TO THE STAKES AND CROSS BRACING.
STONE TRACKING PAD DETAIL

GENERAL NOTES

STONE TRACKING PAD DETAIL, USE WORKMEN'S/PATAN-MANUFACTURER'S DRAWINGS ONLY. DRAWINGS SHALL CONFORM TO DRAWING SPECIFICATIONS. DRAWINGS MUST BE PREPARED IN COMPLIANCE WITH THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

TRACKING PAD SHALL BE DEMOLISHED AFTER CONSTRUCTION IS COMPLETE.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT SURFACE WATER ARE INCIDENTAL TO THE TRACKING PAD ITEM.

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1. CULVERT ABANDONMENT WITH FLOWABLE FILL: VERIFY WITH BUILDING OWNER (OWNERS), THAT ALL PRIVATE PLUMBING UTILITIES THAT MAY BE Affected BY THE ABANDONMENT HAVE BEEN ADDRESSED. BLOCK END OF CULVERT SEGMENT TO BE ABANDONED BY FILLING WITH FLOWABLE FILL. TELL CULVERT PER SPECIFICATION.

2. AFTER COMPLETION OF CULVERT ABANDONMENT, ABANDON CHANNELS BY FILLING WITH CLEAN FILT Compact TO 90% PROCTOR DENSITY (ASTM D1557). GRADE PER SHEET GR-2
1. DEMOLITION OF ONE HOUR MARTINIZING (OHM) BUILDING, INCLUDING BUILDING, SHED, UTILITIES, AND MONITORING WELLS, TO BE COMPLETED BY OTHERS.

2. CONTRACTOR TO REMOVE ALL REMAINING ASPHALT WITHIN OHM PROPERTY LIMITS.
THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE THE DRAWING - ANY ERRORS OR OMISSIONS SHALL BE REPORTED TO STANTEC WITHOUT DELAY.

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**STORM SEWER QUANTITIES AND DETAILS**

**NOTE:**
- NORTHING AND EASTING FOR MANHOLES ARE CENTER OF STRUCTURE.
- NORTHING AND EASTING FOR FLARED END SECTION (FES) TO DOWNSTREAM END OF FES.

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<th>STRUCTURE</th>
<th>DESCRIPTION</th>
<th>PLAN &amp; PROFILE DWG NO.</th>
<th>SIZE</th>
<th>CASTING</th>
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<th>PIPE(S) OUT</th>
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**CLASS 2 RIPRAP REQUIREMENTS**
- 12" TO 24" 6 cubic yards
- 24" TO 30" 6 cubic yards
- 30" TO 48" 12 cubic yards
- 48" AND UP 36 cubic yards

*(One cubic yard is approximately 2,800 lbs.)*
PIPE CONSTRUCTED IN NEW TRENCH 1

PIPE CONSTRUCTED WITHIN ABANDONED CULVERT WALLS 2

ASPHALT PARKING LOT RESTORATION TYPE "A"

TURF GRASS RESTORATION TYPE "B"
THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE THE DRAWING - ANY ERRORS OR OMISSIONS SHALL BE REPORTED TO STANTEC WITHOUT DELAY.

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12075 N. Corporate Parkway, Suite 200
Mequon, WI 53092
www.stantec.com
The contractor shall verify and be responsible for all dimensions. Do not scale the drawing - any errors or omissions shall be reported to STANTEC without delay.

Drawing name: V:\1938\active\193804489\CAD\Dwg\Sheets\193804489C300.dwg

For any purpose other than that authorized by STANTEC is forbidden.

Xrefs:, Border, 193804489_XSXT, 193804489_XSNU, 193804489_XSPL, 193804489_XSNO
EXISTING GROUND PROFILE OVER PROPOSED CHANNEL
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<th>Left Bank Elevation (FT)</th>
<th>Left Bank Elevation (PT)</th>
<th>Length (FT)</th>
<th>Draw Sheet</th>
<th>Plan Sheet</th>
<th>PCC Point</th>
<th>PCC Elevation (FT)</th>
<th>Top of Pipe (FT)</th>
<th>PCC Cover (FT)</th>
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Additional information:
- **Channel Design Table**
- **Survey Date of Issuance**
- **Permitting/Regulator Review**
NEW RETAINING WALL

EXISTING STORM SEWER OUTLET

ENERGY DISSIPATION PLAN

1" = 10'

STONE WEIR PLAN

1" = 20'

SECTION A

SECTION B

EXISTING 128"x82" HERCP STORM SEWER

BOTTOM OF POOL STA 0+27 TO STA 0+47 ELEV 729.92

RAILROAD BRIDGE

EXISTING GROUND

TOP OF WEIR ELEV 728.0

HEAVY RIPRAP (10" max) FROM EXTENSION 12'-7" TO 12'-17"

EXISTING GROUND

ENERGY DISSIPATION AREA AND WEIR

1" = 40'

WISDOT DENSE GRADED BASE - 3 INCH CRUSHED GRAVEL ONLY MIN. THICKNESS 12"

WISDOT HEAVY RIPRAP D50 = 16 INCHES

MATCH EXISTING STORM SEWER INVERT 732.60

SUBPAVEMENT - BOTTOM CHANNEL 729.92

EXISTING RECTANGULAR TRANSITION SECTION

NEW RETAINING WALL

NEW RETAINING WALL

WATER TOWN PLANK ROAD

DATE OF ISSUANCE: January 10, 2019

SHEET NUMBER: 193804489

VILLAGE OF ELM GROVE

WAUKESHA COUNTY, WISCONSIN

SHEET NUMBER: 193804489

DATE: January 10, 2019

SHEET NUMBER: 193804489

SURVEY APPROVED: January 10, 2019

DESIGNED: January 10, 2019

DRAWN: January 10, 2019

CHECKED: January 10, 2019

THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE THE DRAWING - ANY ERRORS OR OMISSIONS SHALL BE REPORTED TO STANTEC WITHOUT DELAY.

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FOR PERMITTING/REGULATORY REVIEW

12075 N. Corporate Parkway, Suite 200

Mequon, WI 53092

www.stantec.com
**TYPICAL CROSS SECTION NOTES**

1. TYPICAL SECTIONS ARE VIEWED FACING DOWNSTREAM.
2. TYPICAL SECTION VERTICAL CONTROL SHALL BE ABOUT THE THALWEG POINT PER PLAN AND PROFILE VIEWS.
3. ALL GRADING, EXCAVATION, AND FILL SHALL BE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
4. GRADING OF ALL AREAS OUTSIDE OF THE PROPOSED CHANNEL (INCLUDING FLOOD PRONE AREAS, TERRACE SLOPES AND WETLANDS) SHALL ALLOW FOR MINOR VARIATIONS IN ELEVATION. VARIATIONS OF UP TO 0.5' ARE ACCEPTABLE.
5. THE EXISTING STREAM CHANNEL SHALL BE PARTIALLY FILLED AS SHOWN ON GRADING PLAN.
6. REFER TO PROFILE SHEETS FOR SPECIFIC LOCATIONS OF TYPICAL SECTION APPLICATION.
7. TRANSITION BETWEEN RIFFLE AND POOL OR POOL AND RIFFLE TYPICAL CROSS SECTIONS SHALL BE EVENLY GRaded.
8. SLOPE TRANSITIONS BETWEEN TOP OF CHANNEL BANK, FLOODPLAIN BENCH, TERRACE SLOPE AND EXISTING SURROUNDING GROUND SHALL BE GRADED TO PROVIDE A SMOOTH AND ROUNDED TRANSITION. REFER TO PLANTING NOTES AND DETAILS FOR ADDITIONAL SLOPE TRANSITION GRADING/SURFACE PREPARATION.
NOTES:
1. CONSTRUCTED GLIDES, RIFFLES, AND/OR RUNS SHALL BE CONSTRUCTED IN NEWLY GRADED CHANNEL SECTIONS AND/OR IN EXISTING CHANNEL SECTIONS, AT THE LOCATIONS SHOWN ON THE PLANS, AND IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
3. SUBPAVEMENT MATERIAL SHALL CONSIST OF ABC STONE OR ON-SITE GRAVEL, SANDS, AND Fines MEETING THE SIZE AND GRADATION REQUIREMENTS FOR ABC STONE. SUBPAVEMENT IS TYPICALLY NOT REQUIRED IF THE IN-SITU GROUND IS COMPRISED OF GRAVELS MATERIAL. THE ENGINEER SHALL MAKE THE FINAL DETERMINATION REGARDING WHETHER OR NOT SUBPAVEMENT SHALL BE USED, BASED ON SITE CONDITIONS OBSERVED DURING CONSTRUCTION. IF SUBPAVEMENT IS REQUIRED BY THE ENGINEER, THE SUBGRADE SHALL BE EXCAVATED, AS NEEDED, TO ALLOW FOR THE PLACEMENT OF A 12" THICK LAYER OF SUBPAVEMENT MATERIAL BELOW THE PROPOSED GLIDE, RIFFLE, AND/OR RUN MATERIAL.
4. RIFFLE MATERIAL (PAVEMENT) SHALL BE COMPRISED OF CLEAN, HARD, QUARRIED ROCK MATERIAL MEETING THE FOLLOWING GRADATION:
   a. 15-40% SMALL BOULDERS/COBBLE (6"-12" DIA.; 35-65% SMALL BOULDERS/COBBLE (6"-12" DIA., D50 9", D84 11")
   b. 25-35% GRAVEL, SAND AND FINES;
   c. 25-35% GRAVEL, SAND AND FINES;
   d. BOULDERS (12"-24" DIA.) NOT TO EXCEED 10% MAX.
ON-SITE BED MATERIAL, ROCK, COBBLE, AND GRAVELS WITH A SIZE AND GRADE MEETING OR EXCEEDING THE SIZE SPECIFIED ABOVE MAY BE EXCAVATED, STOCKPILED, AND RE-FED FROM ABANDONED CHANNEL SECTIONS. ON-SITE ROCK MATERIAL SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS ABOVE. OFF-SITE PAVEMENT MATERIAL SHALL BE PLACED IN AN 18" THICK LAYER ACROSS THE STREAM BED. THE CHANNEL BED SHALL BE OVER-EXCAVATED, AS NEEDED, TO ALLOW FOR FULL DEPTH PLACEMENT OF RIFFLE MATERIAL. LARGER ROCKS MAY PROJECT RANDOMLY ABOVE THE STREAM BED PROPOSED GRADATION.
5. GLIDES, RIFFLES, AND/OR RUNS MAY BE CONSTRUCTED INDEPENDENTLY WITH OR WITHOUT THE OTHER BED FEATURES.
6. GLIDE MATERIAL SHALL BE COMPRISED OF CLEAN, WASHED, LOOSE, 3/8" TO 1" DIAMETER ROUND STONE. GLIDE MATERIAL SHALL BE APPLIED IN A 12" THICK LAYER ACROSS THE STREAM BED. THE CHANNEL BED SHALL BE OVER-EXCAVATED, AS NEEDED, TO ALLOW FOR FULL DEPTH PLACEMENT OF THE GLIDE MATERIAL.
7. RUN MATERIAL SHALL BE COMPRISED OF CLEAN, HARD, QUARRIED ROCK MATERIAL MEETING THE FOLLOWING GRADATION:
   a. 25-25% SMALL BOULDERS/COBBLE (6"-12" DIA.); 55-65% SMALL BOULDERS/COBBLE (6"-12" DIA., D50 9", D84 11")
   b. 25-35% SMALL BOULDERS/COBBLE (6"-12" DIA.; 25-35% small BOULDERS/COBBLE (6"-12" DIA., D50 9", D84 11")
   c. 25-35% GRAVEL, SAND AND FINES; 25-35% GRAVEL, SAND AND FINES;
   d. BOULDERS (12"-24" DIA.) NOT TO EXCEED 10% MAX.
ON-SITE BED MATERIAL, ROCK, COBBLE, AND GRAVELS WITH A SIZE AND GRADE MEETING OR EXCEEDING THE SIZE SPECIFIED ABOVE MAY BE EXCAVATED, STOCKPILED, AND RE-FED FROM ABANDONED CHANNEL SECTIONS. RUN MATERIAL SHALL BE APPLIED IN A 24" THICK LAYER ACROSS THE STREAM BED. THE CHANNEL BED SHALL BE OVER-EXCAVATED, AS NEEDED, TO ALLOW FOR FULL DEPTH PLACEMENT OF THE RUN MATERIAL. LARGER ROCKS MAY PROJECT RANDOMLY ABOVE THE STREAM BED PROPOSED GRADATION.
8. GLIDE, RIFFLE, AND RUN MATERIAL SHALL BE FINISH GRADED IN A MANNER TO CREATE A SMOOTH CROSS SECTION AND PROFILE, WITH NO ABUPT "JUMP" OR "DROP" (TRANSITIONS) BETWEEN THE CHANNEL BANKS AND BED OR THE UPSTREAM AND DOWNSTREAM CHANNEL BED.
**NOTE:**

1. TOE WOOD WILL BE CONSTRUCTED IN NEWLY GRADED CHANNEL SECTIONS AND EXISTING CHANNEL SECTIONS AT THE LOCATIONS SHOWN ON THE PLANS AND IN ACCORDANCE WITH THE DETAIL AND THE SPECIFICATIONS SECTION 31090 IN STREAM STRUCTURES.

2. ALL WOODY DEBRIS USED IN THE CONSTRUCTION OF THE TOE WOOD STRUCTURES SHALL BE FROM ON-SITE SOURCES. OFF-SITE WOODY MATERIAL IS PROHIBITED. WOODY DEBRIS CLEARED FROM WITHIN THE CUT/FILL LIMITS OF THE PROPOSED CHANNEL WILL BE USED TO CONSTRUCT THE TOE WOOD.


### TOE WOOD DIMENSIONS

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>REQUIRED</th>
<th>TYPICAL UNIT</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>X1</td>
<td>10.0 - 12.0</td>
<td>IN.</td>
<td>FOOTER LOG - DIAMETER</td>
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<td>X2</td>
<td>10.0 - 15.0</td>
<td>FT.</td>
<td>FOOTER LOG - LENGTH</td>
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<td>X3</td>
<td>3.0 - 6.0</td>
<td>FT.</td>
<td>BROKEN LOG - DIAMETER</td>
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<td>X4</td>
<td>3.0 - 6.0</td>
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<td>X5</td>
<td>3.0 - 5.0</td>
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<td>WOODY DEBRIS - DIAMETER</td>
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<td>X6</td>
<td>3.0 - 12.0</td>
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<td>WOODY DEBRIS - LENGTH</td>
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<td>X7</td>
<td>6.0 - 8.0</td>
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<td>ROCK BACKFILL (D85)</td>
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<td>X8</td>
<td>3.0 - 4.0</td>
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<td>ROCK BACKFILL (D50)</td>
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<td>X9</td>
<td>3.0 - 4.0</td>
<td>IN.</td>
<td>ROCK BACKFILL (D35)</td>
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<td>X10</td>
<td>1.0 - 12.0</td>
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<td>TOP SOIL - DEPTH</td>
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<td>X11</td>
<td>2.0 - 3.0</td>
<td>EA.</td>
<td># OF COIR LIFTS</td>
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<td>X12</td>
<td>5.0 - 5.0</td>
<td>IN.</td>
<td>CORLIFT - THICKNESS (EA)</td>
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<td>X13</td>
<td>4.0</td>
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<td>TOP SOIL - EARTH</td>
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<td>X14</td>
<td>7.0</td>
<td>FT.</td>
<td>LOWER BANK SLOPE - WIDTH</td>
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<td>X15</td>
<td>6.0 - 10.0</td>
<td>IN.</td>
<td>UPPER BANK SLOPE - WIDTH</td>
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<tr>
<td>X16</td>
<td>18.0 - 24.0</td>
<td>IN.</td>
<td>TOE WOOD PROJECTION BEYOND BANK SURFACE</td>
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The contractor shall verify and be responsible for all dimensions. Do not scale the drawing. Any errors or omissions shall be reported to Stantec without delay.

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Plot Date: 01/10/2019 - 6:53pm

Xrefs: 193804489_XSXT, 193804489_XSPL, Border, 193804489_XSNU, 193804489_XSNO

Channel Cross Sections
Underwood Creek Daylighting
Waukesha County, Wisconsin

PROJ. NO.: 193804489
AJR: JSH
RJK: JG

Review:

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NOTES:

- CONTOCH CON/SPAN O-SERIES O329 29'-0" X 11'-1 1/2" RISE 1 CELL - 56' LONG SHOWN FOR REFERENCE.
- ALTERNATE EQUIVALENT SINGLE CELL CULVERT CONFIGURATIONS WILL BE CONSIDERED IF PROPOSED.
- CONTRACTOR SHALL SUBMIT DETAILS OF PROPOSED CULVERT FOR CONSIDERATION.
PROPOSED RETAINING WALL (W3)

NOTE:
1. WHERE RETAINING WALL EXTENDS ABOVE GROUND SURFACE, USE BLOCK TEXTURED ON BOTH SIDES (FREE STANDING BLOCK).
2. APPROXIMATELY ONE (1) COURSE OF FREE STANDING BLOCKS AT TOP OF WALL. USE ADJACENT FREE STANDING BLOCKS AS NECESSARY BELOW TOP COURSE.

PROPOSED FOOTING WALL (W3)

42'' SAN

TOP OF WALL (W3)

PROPOSED GROUND PROFILE IN CHANNEL AT BOTTOM OF WALL (W3)

EXISTING GROUND ALONG WALL (W3)

PROPOSED GROUND PROFILE IN CHANNEL AT BOTTOM OF WALL (W3)

PROPOSED FOOTING WALL (W3)

ELEVATION VIEW

20+00
21+00
22+00

20+00
21+00
22+00

PROPOSED GROUND PROFILE IN CHANNEL AT BOTTOM OF WALL (W3)

GROUND ALONG WALL (W3)

GEORGE PACIFIC RR

ANTICIPATED FUTURE PROPERTY LINE

1" = 40'
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CONCRETE SIDEWALK 5-INCH
4-INCH BASE AGGREGATE DENSE 3/4-INCH

EXISTING ASPHALT PAVEMENT

MATCH EXISTING CURB & GUTTER WIDTH

EXISTING ASPHALT PAVEMENT

MATCH EXISTING CURB & GUTTER WIDTH

2-INCH SURFACE COURSE TYPE 4MT 58-28 H, NOMINAL SIZE 12.5 mm
1-INCH BINDER COURSE TYPE 3MT 58-28 S, NOMINAL SIZE 19.5 MM
1-INCH CRUSHED BASE AGGREGATE DENSE 3/4-INCH
7-INCH CRUSHED BASE AGGREGATE DENSE 1 1/4-INCH
COMPACTED SUBGRADE

3-INCH CRUSHED BASE AGGREGATE DENSE 3/4-INCH
7-INCH CRUSHED BASE AGGREGATE DENSE 1 1/4-INCH

2-INCH SURFACE COURSE TYPE 4MT 58-28 H, NOMINAL SIZE 12.5 mm
1-INCH BINDER COURSE TYPE 3MT 58-28 S, NOMINAL SIZE 19.5 MM
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COMPACTED SUBGRADE

3-INCH CRUSHED BASE AGGREGATE DENSE 3/4-INCH
7-INCH CRUSHED BASE AGGREGATE DENSE 1 1/4-INCH

COMPACTED FILL OVER BOX CULVERT

TOP OF BOX CULVERT

CURB AND GUTTER (TYP)

TOP OF RAILING

TOP OF BOX CULVERT

CURB AND GUTTER (TYP)

TOP OF RAILING

TOP OF HEAD WALL

COMPACTED FILL OVER BOX CULVERT

TOP OF RAILING

TOP OF BOX CULVERT

CURB AND GUTTER (TYP)

TOP OF RAILING

TOP OF HEAD WALL

COMPACTED FILL OVER BOX CULVERT

TOP OF RAILING

TOP OF BOX CULVERT

CURB AND GUTTER (TYP)

TOP OF RAILING

TOP OF HEAD WALL

COMPACTED FILL OVER BOX CULVERT

TOP OF RAILING

TOP OF BOX CULVERT

CURB AND GUTTER (TYP)

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TOP OF HEAD WALL

COMPACTED FILL OVER BOX CULVERT

TOP OF RAILING

TOP OF BOX CULVERT

CURB AND GUTTER (TYP)

TOP OF RAILING

TOP OF HEAD WALL

COMPACTED FILL OVER BOX CULVERT

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TOP OF BOX CULVERT

CURB AND GUTTER (TYP)

TOP OF RAILING

TOP OF HEAD WALL

COMPACTED FILL OVER BOX CULVERT

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CURB AND GUTTER (TYP)

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COMPACTED FILL OVER BOX CULVERT

TOP OF RAILING

TOP OF BOX CULVERT

CURB AND GUTTER (TYP)

TOP OF RAILING

TOP OF HEAD WALL

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CURB AND GUTTER (TYP)
THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE THE DRAWING - ANY ERRORS OR OMISSIONS SHALL BE REPORTED TO STANTEC WITHOUT DELAY.

THE COPYRIGHTS TO ALL DESIGNS AND DRAWINGS ARE THE PROPERTY OF STANTEC. REPRODUCTION OR USE FOR ANY PURPOSE OTHER THAN THAT AUTHORIZED BY STANTEC IS FORBIDDEN.
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12075 N. Corporate Parkway, Suite 200
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12075 N. Corporate Parkway, Suite 200
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ASPHALT PAVEMENT
CONCRETE SIDEWALK
LEGEND
ZONE A (SEE SHEETS SR-4, SR-5)
ZONE B (SEE SHEETS SR-4, SR-5)
ZONE C (SEE SHEETS SR-4, SR-5)
ZONE D (SEE SHEETS SR-4, SR-5)

INSTALL ±20 LF 30" CURB & GUTTER AND ±219 SF CONCRETE SIDEWALK.
REPLACE CATCH BASIN CASTING TO MATCH FULL HEAD CURB.
GRADE TOPSOIL TO DRAIN TOWARD WATERTOWN PLANK ROAD.
ADJUST SANITARY DIPS.
PAVEMENT MARKING ARROW.
PAVEMENT STRIPE BODY 4 INCH (WHITE).

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PLANTING TABLE 1

<table>
<thead>
<tr>
<th>SCIENTIFIC NAME</th>
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<th>SEEDING RATE (PLSQ)</th>
<th>PERCENT</th>
<th>SEASON</th>
</tr>
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<tbody>
<tr>
<td>Acer saccharinum</td>
<td>Sugar Maple</td>
<td>20 LBS/AC</td>
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<td>Cornus sericea</td>
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<td>2 LBS/AC AS A COVER CRP</td>
<td>14%</td>
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NOTES:
1. CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER. SELECT SPECIES SUITABLE FOR SOIL CONDITIONS AND TESTING AS DESCRIBED IN 700-600 BASEMENT SHAVER REPORT.
2. PL - PURE LIVE SEED.
3. SEED MIXES SHALL INCLUDE 30% WILD RYE SPECIES, MAINTAIN SPECIES DIVERSITY USING NO MORE THAN 20% OF ANY SINGLE WILD RYE SPECIES.
4. SEED MIXES SHALL INCLUDE 60% OF AT LEAST 3 "OTHER" SPECIES (2 FORBS, 3 GRASSES, AND 3 WILD SPECIES).
5. APPLICATION OF SEED MIX AS A COVER CRP.

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TYPICAL PLANTING ZONES

ZONE D
ZONE C
ZONE B
ZONE A

INNER BERM WIDTH 14.0'

TYPICAL RIFFLE CROSS SECTION

1" = 6'

SR-1
SR-2
SR-3

TYPICAL POOL CROSS SECTION

1" = 6'

SR-1
SR-2
SR-3

TYPICAL CROSS SECTION NOTES

1. SLOPE TRANSITIONS BETWEEN TOP OF CHANNEL BANK, FLOODPLAIN BENCH, TERRACE SLOPE AND EXISTING SURROUNDING GROUND SHALL BE GRADED TO PROVIDE A SMOOTH AND ROUNDED TRANSITION. REFER TO PLANTING NOTES AND DETAILS FOR ADDITIONAL SLOPE TRANSITION GRADING/SURFACE PREPARATION.