CITY OF MT. PLEASANT
ISABELLA COUNTY, MICHIGAN

CHIPP-A-WATERS PARK
CHIPPEWA RIVER
STREAMBANK STABILIZATION

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3	REMOVAL PLAN
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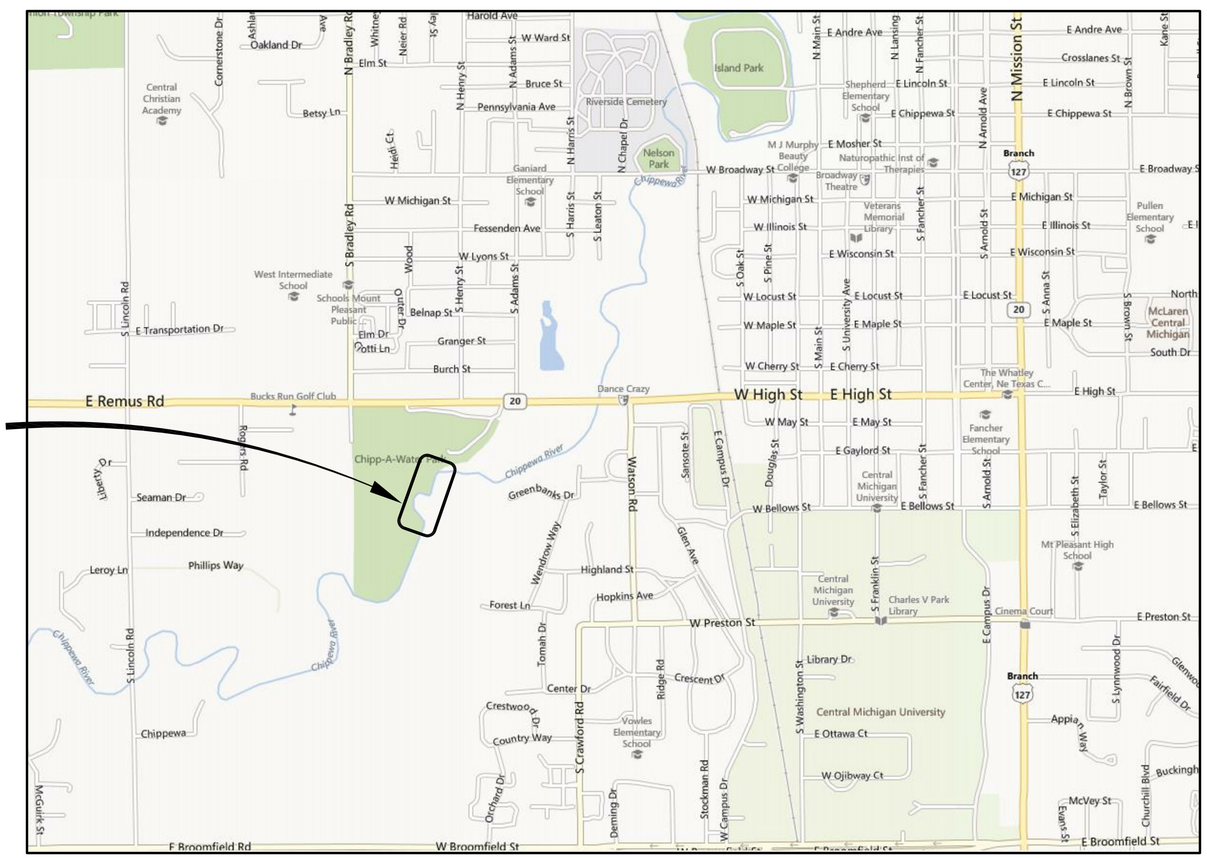

LOCATION MAP

N.T.S.

UTILITY CONTACTS

TELEPHONE
FRONTIER
345 PINE ST.
P.O. BOX 459
ALMA, MI 48801
(989) 463–0220

ELECTRIC
CONSUMERS ENERGY
108 E. THIRD ST.
CLARE, MI 48617
(989) 386–4711

GAS
MICHCON
2230 W. US–10
LUDINGTON, MI 49431
(231) 757–3731

WATER/SEWER
CITY OF MT. PLEASANT
DEPT. OF PUBLIC WORKS
320 W BROADWAY ST
MT. PLEASANT, MI 48858
(989) 779–5401

CONTRACT FOR:
STREAMBANK RESTORATION

OHM
Advancing Communities
2520 S. University Park Drive | Mt. Pleasant, MI 48858
p (989) 956-2020 | f (734) 522-6427

PREPARED UNDER THE SUPERVISION OF:

6201039120
Registration No.

RONALD A. CAVALLARO — Date

REVISIONS	
9–24–13	AS PER CITY COMMENTS
1–27–14	BID SET

PROJECT NO.	SHEET NO.
0075–13–0001	1 OF 7

LOCATION AND SCOPE OF PROJECT

THE PROJECT SITE IS LOCATED ALONG THE CHIPPEWA RIVER IN THE CITY OF MOUNT PLEASANT, ISABELLA COUNTY, MICHIGAN. THE WORK TO BE DONE UNDER THIS CONTRACT INCLUDES THE FURNISHING OF ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO STABILIZE AND RESTORE THE RIVER AS WELL AS ALL NECESSARY EARTHWORK, CLEANING AND RESTORATION IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

GENERAL NOTES

1. IT IS THE INTENTION OF THESE PLANS TO CONSTRUCT ALL WORK IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE THE CITY OF MOUNT PLEASANT, ISABELLA COUNTY AND THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, THE CONTRACT DOCUMENTS, AND THE PLANS REFERENCED HEREIN. WHERE THERE IS A CONFLICT BETWEEN ANY OF THE AFOREMENTIONED SPECIFICATIONS AND THE PERMIT REQUIREMENTS OF THE AGENCY CONTROLLING THE RESPECTIVE UTILITY OR RIGHTS-OF-WAY, THE MORE RESTRICTIVE SHALL GOVERN.

2. THE CONTRACTOR AND HIS SUBCONTRACTORS SHALL ATTEND A PRE-CONSTRUCTION MEETING AT A TIME AND PLACE ARRANGED BY THE ENGINEER IN WHICH THE AFFECTED UTILITY COMPANIES AND GOVERNMENT AGENCY REPRESENTATIVES WILL BE PRESENT.

3. AFTER A PRE-CONSTRUCTION MEETING IS HELD, THE CONTRACTOR SHALL NOTIFY OHM ADVISORS, (989) 956-2020, A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION FOR INSPECTION. NO WORK CAN COMMENCE UNTIL ALL PERMITS HAVE BEEN OBTAINED AND THE CONTRACTOR HAS BEEN GIVEN AUTHORIZATION TO PROCEED.

4. CONTRACTOR SHALL NOTIFY MISS DIG FOR EXISTING UTILITY STAKE OUT 72 HOURS IN ADVANCE OF CONSTRUCTION. THE PROJECT WILL BE BILLED FOR EXCESSIVE STAKEOUTS.

5. LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING AND VERIFYING THE LOCATION, DEPTH, AND ELEVATION OF EXISTING UTILITIES, AND PROPOSED UTILITIES CROSSING THE CONSTRUCTION AREA PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IF ANY CONFLICTS ARE APPARENT OR IF LOCATIONS AND DEPTHS DIFFER SIGNIFICANTLY FROM THE PLANS.

6. ALL ELEVATIONS ARE ON AN ASSUMED LOCAL DATUM.

7. ALL PROPERTIES OR FACILITIES IN THE SURROUNDING AREAS, PUBLIC OR PRIVATE, DESTROYED OR OTHERWISE DAMAGED BY THE CONTRACTORS OPERATIONS SHALL BE REPLACED OR REPAIRED TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION OF THE PROPERTY OR FACILITY BY THE CONTRACTOR AT THEIR OWN EXPENSE.

8. CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL NECESSARY BARRICADES AND TRAFFIC CONTROL DEVICES REQUIRED BY ISABELLA COUNTY AND THE CITY OF MOUNT PLEASANT.

9. IF, IN THE OPINION OF THE ENGINEER, WORK HAS NOT PROGRESSED IN A REASONABLE AND TIMELY MANNER, THE ENGINEER SHALL HAVE THE RIGHT, WITH THE APPROVAL OF THE CITY OF MOUNT PLEASANT, TO DIRECT THE CONTRACTOR TO PROCEED WITH THE WORK OR ANY PORTION THEREOF IMMEDIATELY. IN THE EVENT THAT THE CONTRACTOR DOES NOT PROCEED WITH THE WORK IMMEDIATELY, AS DIRECTED BY THE ENGINEER, THE ENGINEER, UNDER THE DIRECTION OF CITY OF MOUNT PLEASANT, MAY ORDER ANY OR ALL OTHER OPERATIONS OF THE CONTRACTOR, UNDER THIS CONTRACT, TO CEASE UNTIL THE FINAL CLEANUP AND RESTORATION WORK IS PROCEEDING IN AN ACCEPTABLE MANNER. SHOULD THE CONTRACTOR FAIL TO COMPLY WITH THESE PROVISIONS, THE CITY OF MOUNT PLEASANT MAY, WITH OR WITHOUT NOTICE, CAUSE THE REQUIRED RESTORATION AND CLEANUP TO BE DONE BY THE CITY OF MOUNT PLEASANT OR OTHERS AND WILL DEDUCT THE COST OF SAID WORK FROM ANY MONEY DUE OR TO BECOME DUE THE CONTRACTOR UNDER THIS CONTRACT. THE PERFORMANCE OF SUCH WORK BY THE CITY OF MOUNT PLEASANT OR OTHERS SHALL SERVE IN NO WAY TO RELEASE THE CONTRACTOR FROM HIS GENERAL OR PARTICULAR LIABILITY FOR THE SAFETY OF THE PUBLIC OR THE WORK.

10. ALL ITEMS REFERRED TO, AS "INCIDENTAL" OR "COST SHALL BE INCIDENTAL" SHALL BE INCLUDED IN THE UNIT PRICES LISTED IN THE CONTRACT DOCUMENTS. NO SEPARATE COSTS WILL BE ACCEPTED.

UTILITIES

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM. UTILITY LOCATIONS SHOWN ON THE PLANS ARE ONLY APPROXIMATE AND SHOULD BE LOCATED IN THE FIELD BEFORE EXCAVATING IN THE AREA.

EROSION AND SEDIMENTATION CONTROL NOTES

1. CONTRACTOR SHALL COMPLY WITH REQUIREMENTS OF THE SOIL EROSION AND SEDIMENTATION CONTROL ACT OF THE STATE OF MICHIGAN, PART 91 OF ACT 451, OF THE PUBLIC ACTS OF 1994.

2. THE CONTRACTOR SHALL CONDUCT OPERATIONS IN A MANNER THAT WILL REDUCE ACCELERATED EROSION TO THE PRACTICAL MINIMUM AND PREVENT DAMAGING SILTATION TO EXISTING SEWERS AND WATER COURSES LEADING FROM THE WORK SITE.

3. THE CONTRACTOR SHALL CONDUCT WORK IN SUCH A MANNER AS TO PREVENT THE ENTRY OF FUELS, OILS, BITUMINOUS MATERIALS, CHEMICALS, SEWERAGE OR OTHER HARMFUL MATERIALS INTO NEARBY LAKES AND STREAMS.

4. WASTE DISPOSAL AREAS SHALL BE SELECTED BY THE CONTRACTOR WITH FULL CONSIDERATION OF EROSION AND SEDIMENT CONTROL, SELECTION OF DISPOSAL SITE, AND CONTROL OF OPERATIONS, AND THE RESTORATION OF SAID AREAS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

5. EXCAVATION FROM THE RIGHT-OF-WAY, CHANNELS, OR OTHER MATERIAL SHALL NOT BE DEPOSITED IN OR NEAR RIVERS, STREAMS OR PONDS WHERE IT MAY ENTER THE WATERWAY.

6. AT THE COMPLETION OF EACH DAY'S CONSTRUCTION, CARE SHALL BE TAKEN TO ENSURE THAT MINIMAL EROSION WILL OCCUR IN TRENCHES AND TO STOCKPILED MATERIALS UNTIL RESUMPTION OF WORK

7. CONTRACTOR SHALL CONFINE OPERATIONS TO THE MINIMUM AMOUNT OF WORKING SPACE PRACTICAL TO MINIMIZE SOIL EROSION.

8. THE PROJECT WILL BE CONTINUALLY INSPECTED BY THE ENGINEER FOR EROSION CONTROL COMPLIANCE. DEFICIENCIES WILL BE CORRECTED BY THE CONTRACTOR IMMEDIATELY UPON NOTICE OF SUCH DEFICIENCIES. FAILURE TO CORRECT THE DEFICIENCIES MAY RESULT IN THE ISSUANCE OF A STOP WORK ORDER AND THERE WILL BE NO CONTRACT TIME EXTENSION GRANTED FOR THIS TYPE OF STOPPAGE.

9. TEMPORARY SOIL EROSION CONTROL MEASURES CONSISTING OF SILT FENCE, MULCHING, AND TARPING SHALL BE IMPLEMENTED THROUGHOUT THE ENTIRE CONSTRUCTION PHASE OF THE PROJECT, AND SHALL BE REMOVED BY THE CONTRACTOR AFTER THE PERMANENT SOIL EROSION MEASURES HAVE BEEN COMPLETED.

10. PERMANENT SOIL EROSION MEASURES CONSISTING OF THE MIXTURE SEED AND MULCH BLANKET SHALL BE COMPLETED WITHIN 5 CALENDAR DAYS OF FINAL GRADING. IN THE EVENT IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE THE AREA DUE TO SITE CONDITIONS AND/OR SEASONAL LIMITATIONS, THE TEMPORARY MEASURES SHALL REMAIN IN FORCE AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL SUCH TIME AS IT IS PRACTICAL TO COMPLETE THE PERMANENT SOIL EROSION CONTROL MEASURES.

11. THE ENGINEER SHALL HAVE FULL AUTHORITY TO TEMPORARILY SUSPEND WORK IN THE EVENT THAT ANY OF THE ABOVE REQUIREMENTS ARE NOT BEING MET BY THE CONTRACTOR, OR IF CONDITIONS INDICATE THAT ADDITIONAL TEMPORARY CONTROL MEASURES ARE WARRANTED, IN THE OPINION OF THE ENGINEER.

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE TEMPORARY ROAD SURFACE AND SOIL EROSION CONTROL MEASURES WITHIN THE CONSTRUCTION AREA UNTIL THE FULL COMPLETION OF THE PROJECT.

13. ALL NON-PAVED DISTURBED AREAS SHALL BE RESTORED AS SHOWN ON THE PLANS. IF NOT SPECIFICALLY STATED ON THE PLANS, RESTORATION SHALL CONSIST OF 3 INCHES OF TOPSOIL, FERTILIZER, SEED AND MULCH. UNLESS OTHERWISE STATED, ALL DISTURBED AREAS SHALL BE SEEDED WITH THE SEED MIX LISTED ON THE PLANS.

WORK LIMITS

THE CONTRACTOR SHALL KEEP ALL OPERATIONS WITHIN THE WORK LIMITS SHOWN ON THE PLANS. THIS INCLUDES ALL MATERIAL STOCKPILING AND EQUIPMENT STORAGE. THE CONTRACTOR MAY NOT EXIT THE PROJECT WORK LIMITS WITHOUT PERMISSION FROM THE CITY AND ENGINEER.

PROJECT EARTHWORK

THE PROPOSED GRADING WILL RESULT IN A DEFICIT OF EMBANKMENT MATERIAL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL MATERIAL NECESSARY TO ACHIEVE PROPOSED GRADES. MATERIAL INSTALLED ON SITE SHALL BE SOUND EARTH AS DESCRIBED IN MDOT SECTION 205.01

RESTORATION

AREAS ABOVE THE PROPOSED TOP OF BANK SHALL BE RESTORED USING 4" TOPSOIL, MDOT THV SEED AND MULCH. (PAID FOR AS ITEM 8)

STREAM BANK STABILIZATION AREAS (BELOW THE PROPOSED TOP OF BANK) SHALL BE RESTORED USING LIVE STAKES AND JF NEW STORM WATER SEED MIX OR ENGINEER APPROVED ALTERNATIVE AS DESCRIBED IN THE TECHNICAL SPECIFICATION. SEED RATE SHALL BE AS PER SUPPLIER'S RECOMMENDATIONS. STORM WATER SEED MIX IS PAID FOR UNDER ITEM 3. SEED MIX SHALL MEET THE FOLLOWING MIX DESIGN:

Botanical Name	Common Name	Oz./Ac.
Permanent Grasses/Sedges/Rushes:		
Carex crisatella	Crested Oval Sedge	1.00
Carex lurida	Bottlebrush Sedge	2.00
Carex vulpinoidea	Brown Fox Sedge	6.00
Elymus virginicus	Virginia Wild Rye	12.00
Glyceria striata	Fowl Manna Grass	1.25
Juncus effusus	Common Rush	1.00
Juncus torreyi	Torrey's Rush	0.25
Leersia oryzoides	Rice Cut Grass	1.00
Panicum virgatum	Switch Grass	8.00
Scirpus atrovirens	Dark Green Rush	1.00
Scirpus cypernus	Wool Grass	0.50
Scirpus fluviatilis	River Bulrush	0.25
Scirpus validus	Great Bulrush	6.00
	Total	40.25
Temporary Cover:		
Avena sativa	Common Oat	360.00
Lolium multiflorum	Annual Rye	100.00
	Total	460.00
Forbs & Shrubs:		
Alisma spp.	Water Plantain (Various Mix)	4.25
Asclepias incarnata	Swamp Milkweed	1.50
Bidens spp.	Bidens (Various Mix)	2.00
Helenium autumnale	Sneezeweed	2.00
Lycopus americanus	Common Water Horehound	0.25
Mimulus ringens	Monkey Flower	1.00
Penthorum sedoides	Ditch Stonecrop	0.50
Polygonum pensylvanicum	Pinkweed	4.00
Rudbeckia subtomentosa	Sweet Black-Eyed Susan	1.00
Sagitlaria latifolia	Common Arrowhead	1.00
Senna hebacarpa	Wild Senna	1.00
Thalictrum dasycarpum	Purple Meadow Rue	2.00
	Total	20.50

SAWCUTS

THE CONTRACTOR SHALL SAWCUT THE EXISTING CONCRETE CANOE LAUNCH AND DRIVEWAYS TO THE LIMITS OF PROPOSED CONSTRUCTION, TO MAKE A NEAT AND SMOOTH CONNECTION TO THE EXISTING PAVEMENT OR DRIVEWAY AS REQUIRED AND DIRECTED. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE CONSIDERED INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ITEM 5.

TEMPORARY PROTECTION FENCE

TEMPORARY PROTECTION FENCE TO BE INSTALLED BY OWNER TO PROTECT TREES AND KEEP PEDESTRIANS FROM ENTERING THE SITE. CONTRACTOR IS TO MAINTAIN FENCE AND KEEP PARK USERS FROM ENTERING THE SITE.

LIVE STAKE SPECIES

AREAS BELOW T/B SHALL BE RESTORED WITH STORMWATER SEED MIX AND LIVESTAKES IN ACCORDANCE WITH DETAIL B ON SHEET 8 AND PAID FOR AS ITEM 3. LIVESTAKES SHALL CONSIST OF AN EVEN MIXTURE OF THE FOLLOWING SPECIES:

1. BUTTONBRUSH
2. SILKY DOGWOOD
3. RED OSIER DOGWOOD
4. NINEBARK
5. PUSSY WILLOW
6. SANDBAR WILLOW
7. SILKY WILLOW
8. ELDERBERRY
9. ARROW WOOD

DRAWING PATH: P:\0060_0100\0075130050_Chipp-A-Waters_Park_Stream_Bank\Chipp-A-Waters\dwg\Details\130001DET.dwg Jan 27, 2014 - 1:10pm

OHM

DATE	CADD	ENG / ARCH	PROJ MGR	SECTION	TOWN	RANGE	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HORIZ DATUM	VERT DATUM
1-27-14	CAD	BD	CS	Value	Value	Value	ISABELLA COUNTY	CITY OF MT. PLEASANT	H: N/A V: N/A	Value	Value

CLIENT: CITY OF MT. PLEASANT

JOB # 0075-13-0001

REVISIONS:

REVISIONS:
9-24-2013 AS PER CITY COMMENTS

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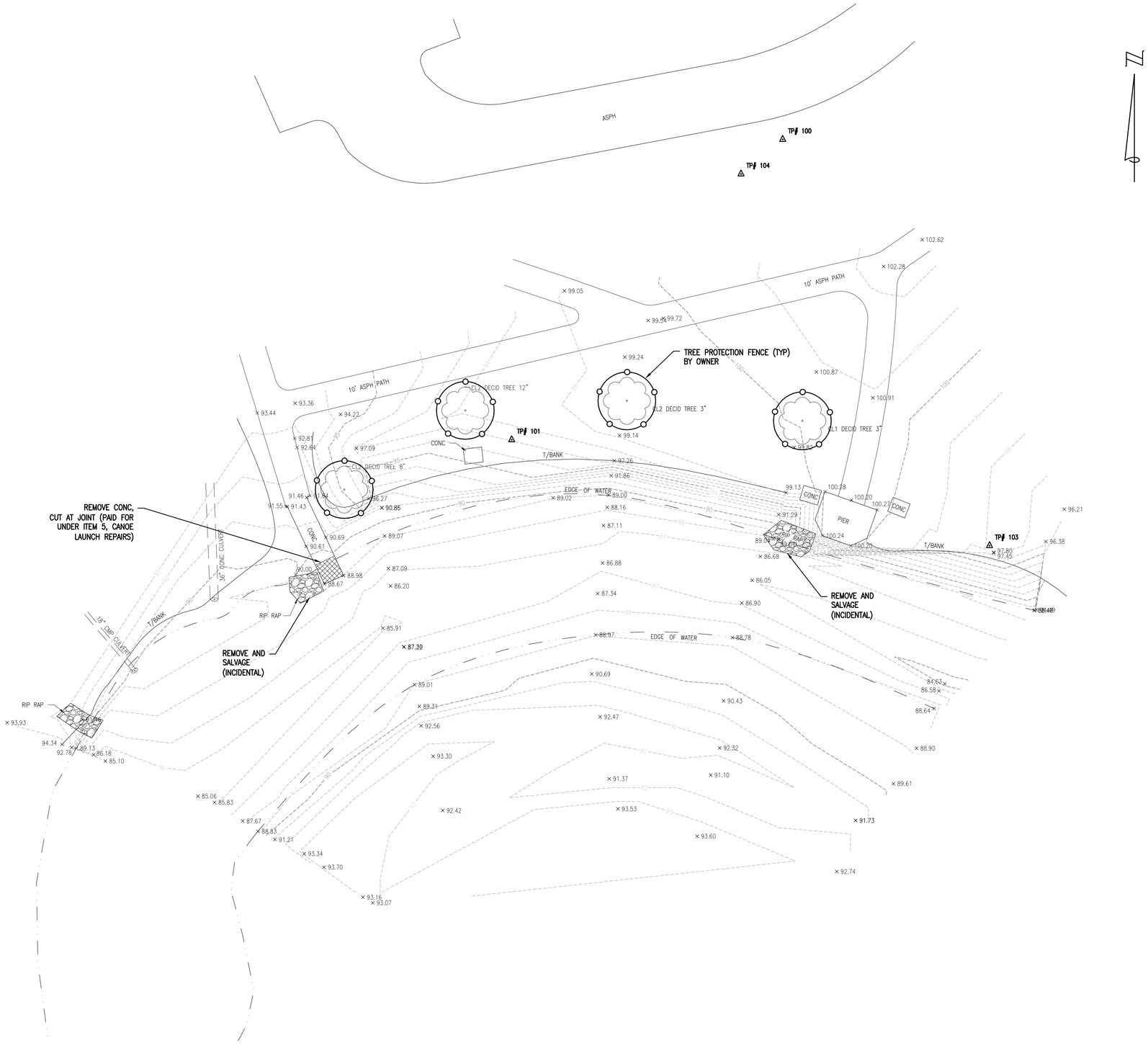
CHIPP-A-WATERS PARK
CHIPPEWA RIVER
STREAMBANK STABILIZATION
GENERAL NOTES



LEGEND

- CULVERT
- RIPRAP
- DECIDUOUS TREE
- BM# BENCHMARK
- TP# TRAVERSE POINT
- WETLAND/EDGE OF WATER
- CONCRETE REMOVAL

811 Know what's **below.** **Call** before you dig.

OHM

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1-27-14	CAD	BD	CS	Value	Value	Value	ISABELLA COUNTY	CITY OF MT. PLEASANT	H: 1"=40' V: 1"=4'	JOB # 0075-13-0001	Value

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CHIPP-A-WATERS PARK
CHIPPEWA RIVER STREAMBANK STABILIZATION REMOVAL PLAN

SHEET 3 OF 7

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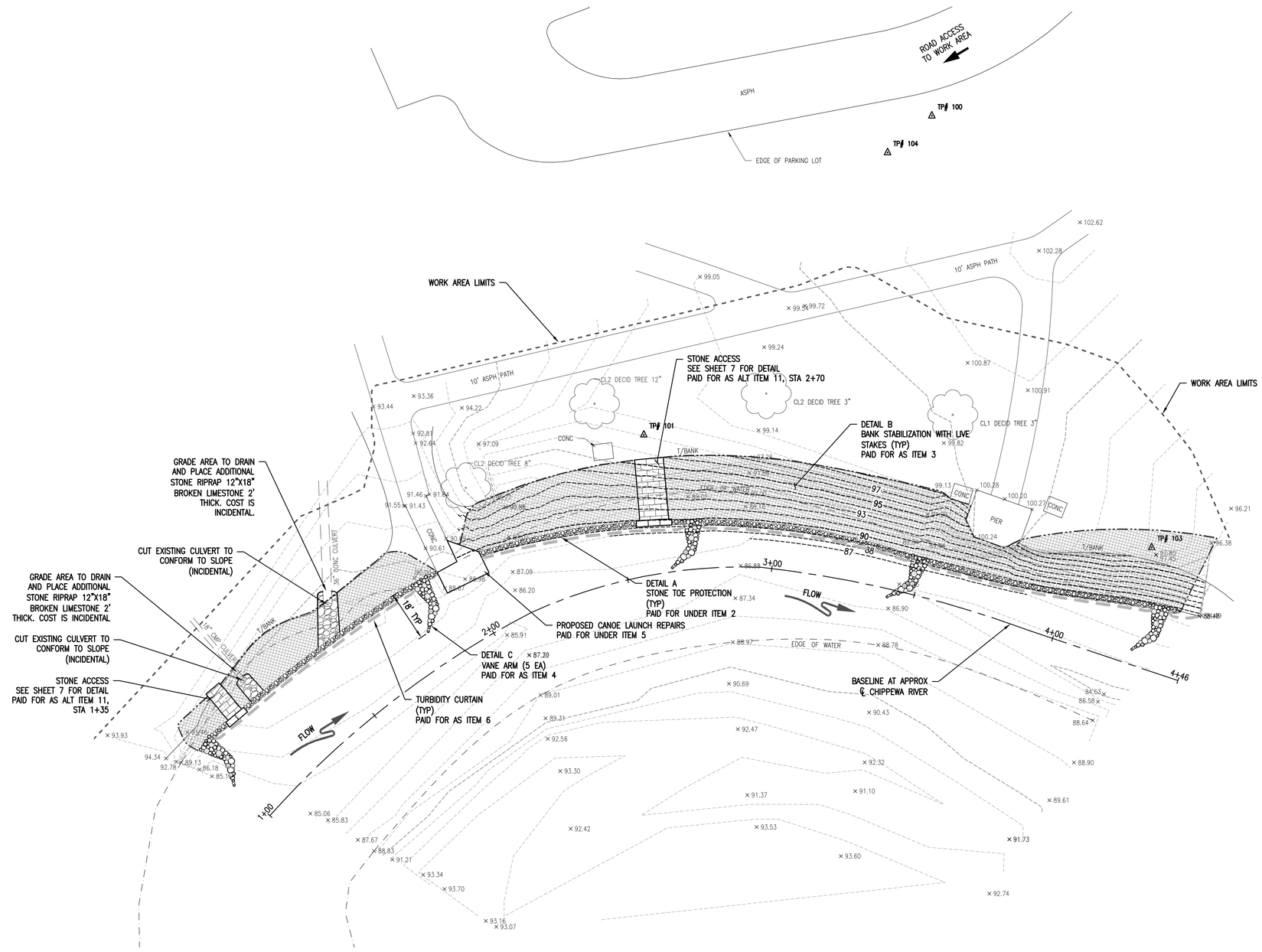

LEGEND

- CULVERT
- DECIDUOUS TREE
- BM# — BENCHMARK
- TP# — TRAVERSE POINT
- WETLAND/EDGE OF WATER
- STONE ACCESS
- LIMESTONE RIPRAP
- TOE STONE (DETAIL A)
- BANK STABILIZATION (DETAIL B)
- VANE ARM (DETAIL C)

NOTES:

1. PROVIDE ONE 50' LONG TEMPORARY GRAVEL ACCESS APPROACH IN LOCATION AS REQUESTED BY ENGINEER ACCORDING TO DETAIL E.
2. WHERE LEFT OR RIGHT IS BEING REFERRED TO, DIRECTION IS FACING DOWNSTREAM.
3. TURBIDITY CURTAIN TO BE INSTALLED PARALLEL TO STREAM FLOW. DEPENDING ON CONSTRUCTION SEQUENCE, CURTAIN MAY NEED TO BE MOVED AND REINSTALLED AROUND VANE ARMS.
4. LIMITED TOPOGRAPHIC SURVEY HAS BEEN OBTAINED AND CONTOURS ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE TO VERIFY EARTHWORK QUANTITIES.
5. ANY EXISTING ASPHALT, GRASS, OR TREES DISTURBED BY CONTRACTORS EQUIPMENT OR OPERATIONS IN ACCESS AREA OR WORK AREA MUST BE RESTORED TO EQUAL OR BETTER CONDITIONS AT CONTRACTOR'S EXPENSE.
6. LIMIT ACCESS ACROSS TRAIL TO ONE LOCATION FOR EQUIPMENT CROSSING.
7. TRAIL MUST BE PROTECTED (STEEL PLATES, MATS, ETC.) IN AREA OF CROSSING. COST IS INCIDENTAL.

Know what's **below.**
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1-27-14	CAD	BD	CS	Value	Value	Value	ISABELLA COUNTY	CITY OF MT. PLEASANT	H: 1"=20' V: 1"=4'	0075-13-0001	Value	Value

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CHIPP-A-WATERS PARK
CHIPPEWA RIVER
STREAMBANK STABILIZATION
CONSTRUCTION PLAN

SHEET 4 OF 7

DRAWING PATH: P:\0000_0100\0075130050_Chipp-A-Waters_Park_Stream_Bank\Chip-A-Waters\dwg\Plans_Const\130001CON.dwg Jan 28, 2014 - 1:59pm

N

NOTES:
1. WHERE LEFT OR RIGHT IS BEING REFERRED TO, DIRECTION IS FACING DOWNSTREAM.

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1-27-14	CAD	BD	CS	Value	Value	Value	ISABELLA COUNTY	CITY OF MT. PLEASANT	H: 1"=30'	V: N/A	Value	Value

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CHIPP-A-WATERS PARK
CHIPPEWA RIVER
STREAMBANK STABILIZATION
CONSTRUCTION PLAN

SHEET 5 OF 7

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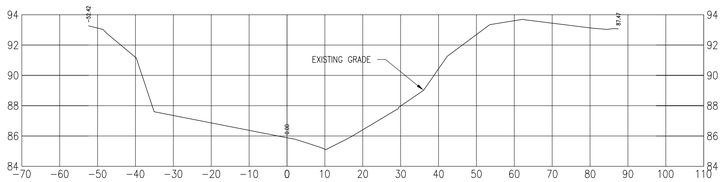
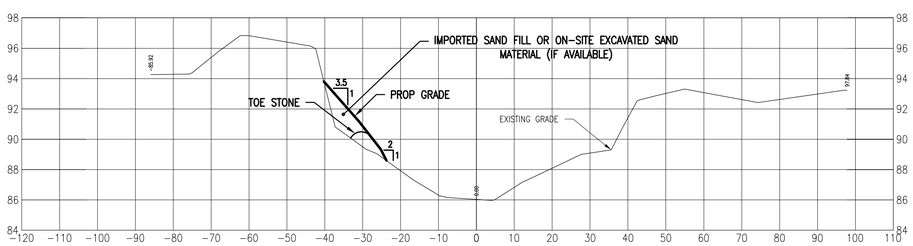


STATION 1+10



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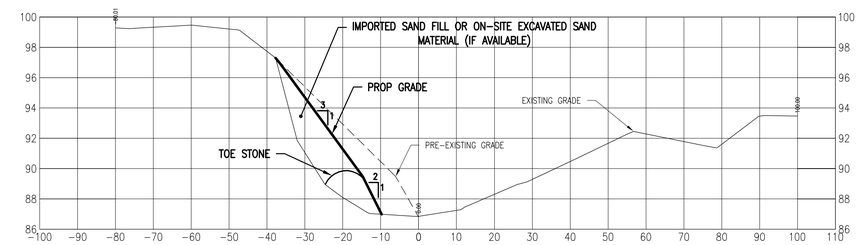

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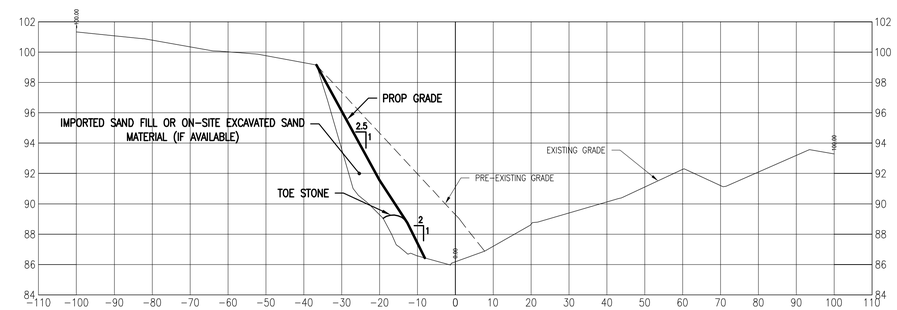

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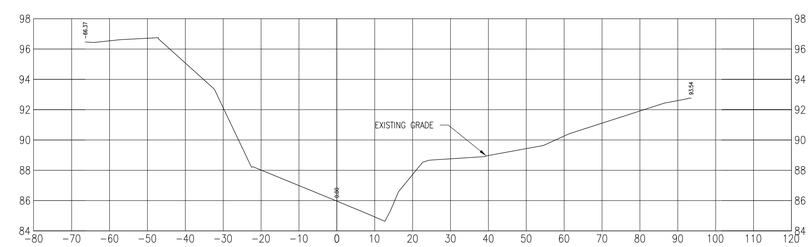

STATION 4+30

Know what's **below.**
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CHIPP-A-WATERS PARK
CHIPPEWA RIVER
STREAMBANK STABILIZATION
CROSS SECTIONS

SHEET
6
OF 7

DATE	CADD	ENG / ARCH	PROJ MGR	SECTION	TOWN	RANGE	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HORIZ DATUM	VERT DATUM
1-27-14	CAD	BD	CS	Value	Value	Value	ISABELLA COUNTY	CITY OF MT. PLEASANT	H: 1"=20' V: 1"=4'	Value	Value

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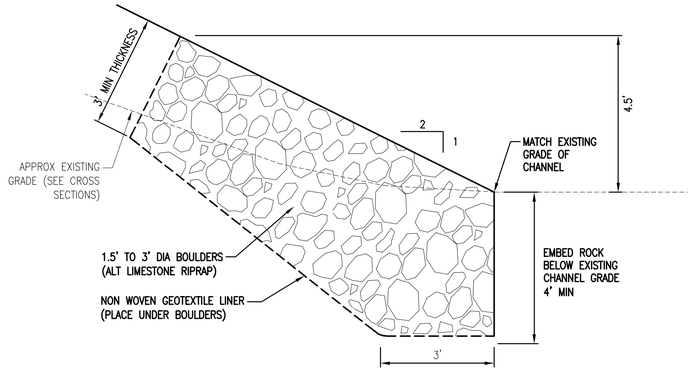
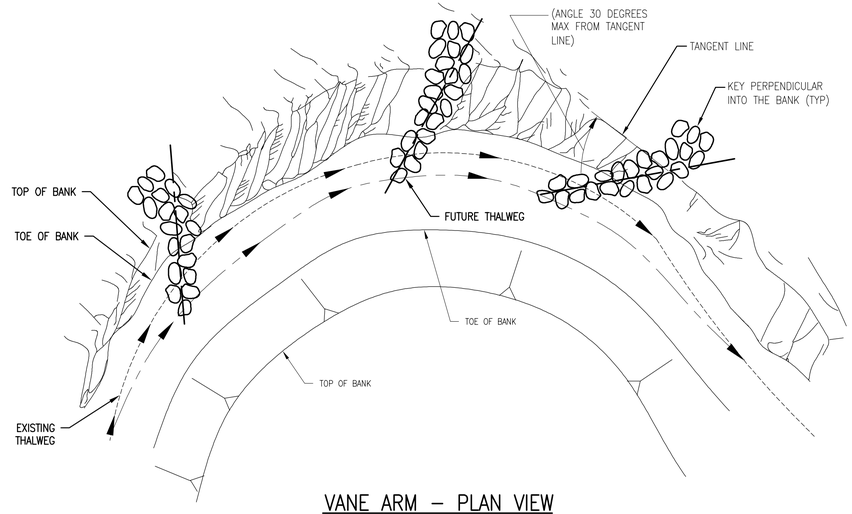


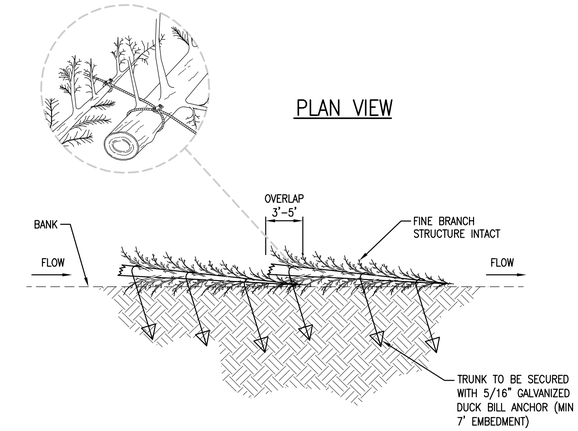
DETAIL A – STONE TOE PROTECTION

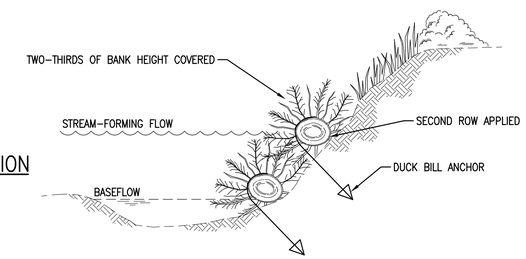
SCALE: 1" = 2'



VANE ARM – PLAN VIEW

NOT TO SCALE



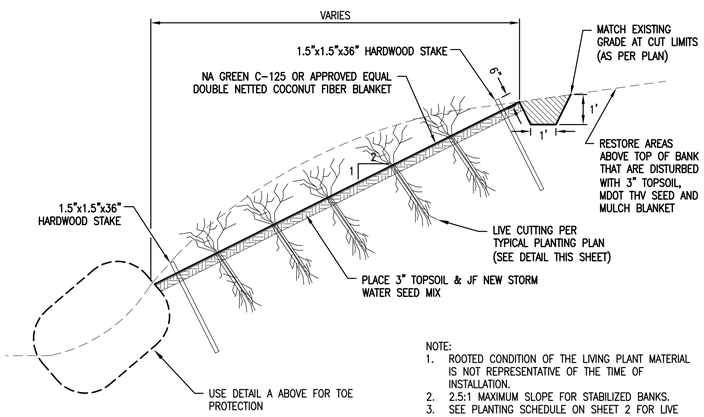


CROSS SECTION

DETAIL D – TREE REVETMENT DETAIL

NOT TO SCALE

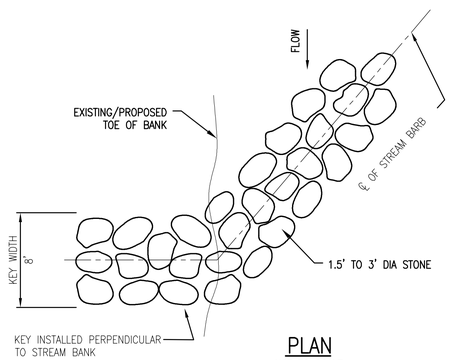
NOTES:
1. TREES MUST BE CONIFERS, 10'–15' LONG, FROM THE FOLLOWING SPECIES: SPRUCE OR FIR.
2. TREES SHALL BE INSTALLED AT BANK TOE AND MAY BE STACKED 2–3 TREES HIGH, AS DIRECTED.
3. TREES SHALL BE INSTALLED WITH LARGER DIAMETER TRUNK FACING UPSTREAM.



NOTE:
1. ROOTED CONDITION OF THE LIVING PLANT MATERIAL IS NOT REPRESENTATIVE OF THE TIME OF INSTALLATION.
2. 2.5:1 MAXIMUM SLOPE FOR STABILIZED BANKS.
3. SEE PLANTING SCHEDULE ON SHEET 2 FOR LIVE CUTTINGS, AND SHRUB PLANT SPECIES.
4. SEE LIVE STAKING INSTALLATION PROCEDURE IN SPECIFICATIONS FOR CONSTRUCTION GUIDELINES.
5. ADDITIONAL HARDWOOD STAKES REQUIRED AT BLANKET SEAMS.

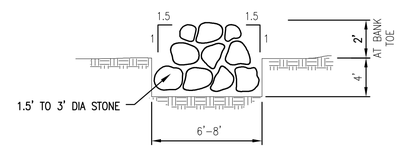
DETAIL B – BANK STABILIZATION WITH LIVE STAKES

NOT TO SCALE



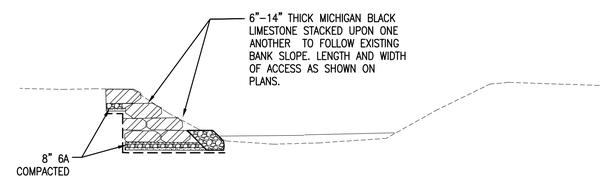
PLAN

NOT TO SCALE



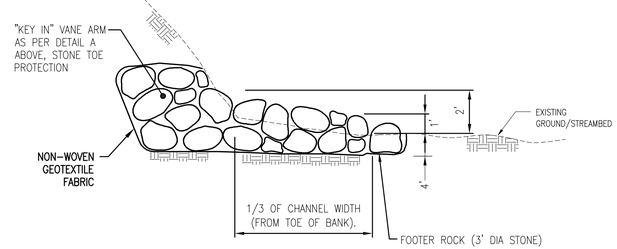
VANE ARM SECTION

NOT TO SCALE



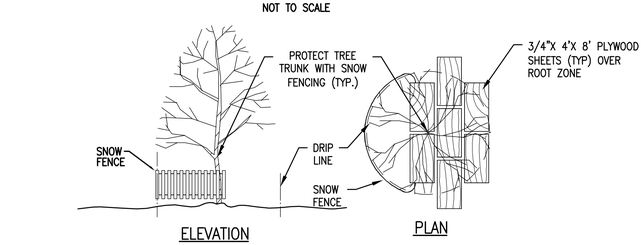
STONE ACCESS CROSS SECTION

NOT TO SCALE



DETAIL C – TYPICAL PROFILE CENTERLINE OF VANE ARM

NOT TO SCALE



STANDARD TREE PROTECTION

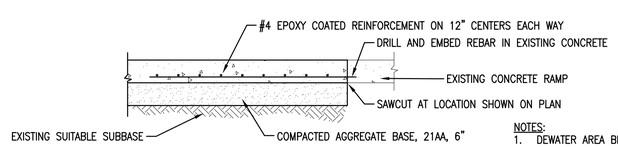
NOTE: PULL BACK FENCING TO INSTALL PLYWOOD

TREE PRESERVATION NOTES:

1. PLACING MATERIALS NEAR TREES: DURING CONSTRUCTION, NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN FIFTEEN (15) FEET OF ANY POINT OF THE TRUNK OF ANY PROTECTED TREE OR WITHIN SIXTY–SEVEN (67) PERCENT OF THE GROUND AREA ENCLOSED WITHIN THE DRIP LINE OF ANY PROTECTED TREE DESIGNATED TO REMAIN INCLUDING, BUT NOT LIMITED TO, PLACING SOLVENTS, BUILDING MATERIAL, CONSTRUCTION EQUIPMENT OR SOIL DEPOSITS WITHIN THE DRIP LINE.

2. ATTACHMENTS TO TREES: DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY DEVICE TO ANY REMAINING PROTECTED TREE EXCEPT FOR THE PROTECTION OF A TREE IN ACCORDANCE WITH FORESTRY PROCEDURES.

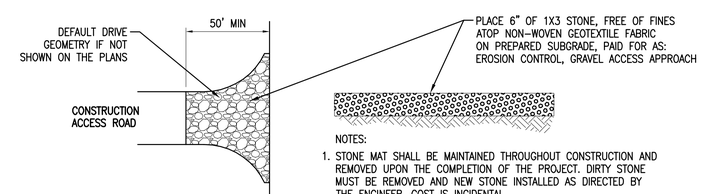
3. PROTECTIVE BARRIER: BEFORE DEVELOPMENT, LAND CLEARING, FILLING OR ANY ALTERATION FOR WHICH A TREE REMOVAL PERMIT IS REQUIRED, THE CONTRACTOR SHALL ERECT PROTECTIVE BARRIERS TO PROTECT REMAINING TREES. PROTECTIVE BARRIERS SHALL REMAIN IN PLACE UNTIL THE OWNER AUTHORIZES THEIR REMOVAL OR ISSUES A FINAL CERTIFICATE TO PLACE UTILITIES IN SERVICE (UNDER WARRANTY), WHICHEVER OCCURS FIRST. WOOD, METAL OR OTHER SUBSTANTIAL MATERIAL SHALL BE UTILIZED IN THE CONSTRUCTION OF BARRIERS. BARRIERS ARE REQUIRED FOR ALL TREES DESIGNATED TO REMAIN.



NOTES:
1. DEWATER AREA BEFORE CONSTRUCTION AND UNTIL CONCRETE CURES. COST IS INCIDENTAL.
2. ALL CONSTRUCTION AND MATERIALS TO MDOT SPECIFICATIONS.

TYPICAL CANOE LAUNCH CONCRETE REPAIR

N.T.S.



NOTES:
1. STONE MAT SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND REMOVED UPON THE COMPLETION OF THE PROJECT. DIRTY STONE MUST BE REMOVED AND NEW STONE INSTALLED AS DIRECTED BY THE ENGINEER. COST IS INCIDENTAL.
2. GRAVEL MATERIAL SHALL BE NATURAL STONE MATERIAL FREE OF DEBRIS. CRUSHED CONCRETE SHALL NOT BE PERMITTED.

PLAN SECTION

DETAIL E – EROSION CONTROL, GRAVEL ACCESS APPROACH

N.T.S.

DRAWING PATH: P:\0000_0100\007513005_Chip-A-Waters_Park_Stream_Bank\Chip-A-Waters\dwg\Details\130001DET.dwg Jan 28, 2014 - 1:39pm

OHM

DATE	CAD/D	ENG / ARCH	PROJ MGR	SECTION	TOWN	RANGE	CLIENT:
1-27-14	CAD	BD	CS	Value	Value	Value	CITY OF MT. PLEASANT

REVISIONS:
9-24-2013 REVISED AS PER CITY COMMENTS

34000 Plymouth Road | Livonia, MI 48150 | P (734) 522-6711 | F (734) 522-6427

WWW.OHM-ADVISORS.COM

CITY/VILLAGE/TOWNSHIP	COUNTY	SCALE	HORIZ DATUM	VERT DATUM
CITY OF MT. PLEASANT	ISABELLA COUNTY	H: AS NOTED V: N/A	Value	Value

JOB # 0075-13-0001

REVISIONS:

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CHIPP-A-WATERS PARK
CHIPPEWA RIVER
STREAMBANK STABILIZATION
DETAILS