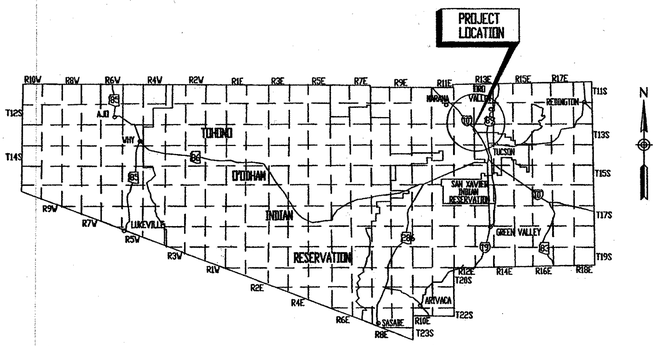
CORTARO MESQUITE BOSQUE HABITAT RESTORATION PROJECT

W.O. NO. 5FCMBG

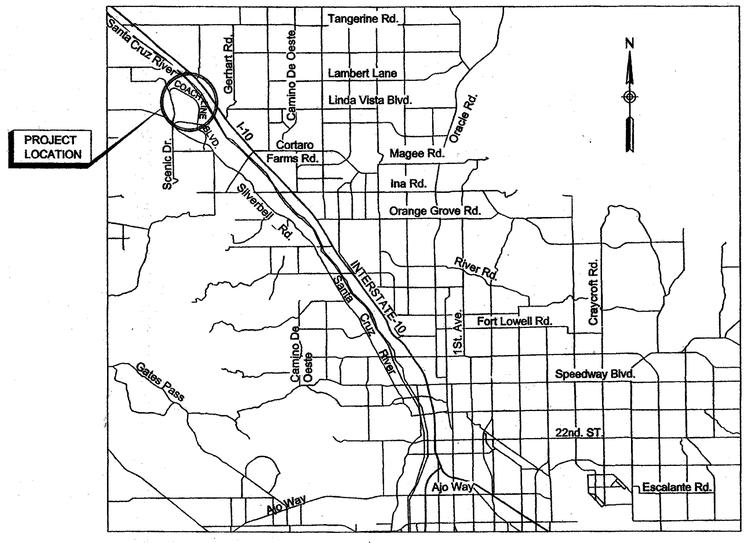


LOCATION MAP

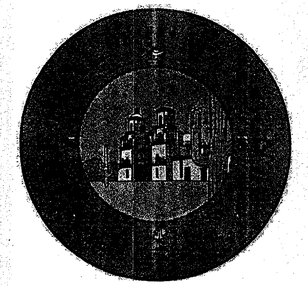
SECTION 16 OF T12S, R12E
G. & S.R.B. & M.
PIMA COUNTY, ARIZONA

GENERAL DESCRIPTION OF PROJECT

THIS PROJECT INVOLVES THE RECREATION OF MESQUITE BOSQUE HABITAT. THE WORK WILL INCLUDE, BUT NOT BE LIMITED TO SURVEY, CLEANING, GRADING, CONSTRUCTION OF PUMP STATION, ELECTRICAL WORK, PLANTING, SEEDING AND IRRIGATION CONSTRUCTION.



VICINITY MAP



PIMA COUNTY
BOARD OF SUPERVISORS
Sharon Bronson, Chair
District 3

Ann Day
District 1

Raymond Carroll
District 4

Ramón Valadez
District 2

Richard Elias
District 5

THIS PROJECT IS LOCATED IN SUPERVISOR DISTRICT 3

HABITAT ACREAGES CREATED:

Cottonwood/Willow	8.9 ac.
Willow/Grassland	5.5 ac.
Mesquite Bosque	29.3 ac.
Xeroriparian Mesquite Bosque	33.1 ac.
Upland	6.0 ac.
Total	82.8 ac.

PROJECT SHEET INDEX

SHEET No.	
1	COVER SHEET
2	SHEET INDEX MAP, GENERAL NOTES & LEGEND
3–5	HORIZONTAL CONTROL SHEETS
6	PLANTING PLAN OVERVIEW
7–19	PLANTING PLANS
20	PLANTING DETAIL SHEET
21	PUMP STATION LAYOUT PLAN
21A–22	PUMP STATION DETAIL SHEETS
23	DETENTION STRUCTURE DETAIL SHEET
24–39	IRRIGATION PLANS
40–42	ELECTRICAL PLANS

APPROVED P.C.W.W.M.

NO.	REVISIONS	ENGINEER	DATE
NO.	AS-BUILT	ENGINEER	DATE

WORK ORDER NO. 99-080 WPF

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

201 N. STONE AVE. TUCSON, ARIZONA 85701

Suzanne Shields, P.E.
Director, Regional Flood Control District

REVIEWED BY	ENGINEER	DATE
MGR. F.C. ENGR.		
MGR. FIELD ENGR.		
MGR. FLOODPLAIN MGT.		
MGR. W. RES.		

APPROVED 4/26 2005

SUZANNE SHIELDS P.E., DIRECTOR
REGIONAL FLOOD CONTROL DISTRICT

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

		DATE
DESIGNED	R.S./R.A.	3-2005
DRAWN	G.G.F.	3-2005
CHECKED	R.S./R.A.	3-2005
	M.F.T.	3-2005

CORTARO MESQUITE BOSQUE
COVER SHEET
W.O. # 5FCMBG

FILE NAME
FL. STAMP/SIGN
REF. FILES ATTACHED
SEAL/SIGN

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Engineering and Environmental Consultants
2343 E. Broadway Blvd. Suite 202
Tucson, Az 85719 (520) 206-9585

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Blue Stake Center
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FILE: N:\PROJECTS\455.03\CORTARO-MESQUITE\CHB-1.DWG

COVER SHEET | SHEET NO. 1 OF 42

GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF STANDARD SPECIFICATIONS FOR CONSTRUCTION FOR PIMA COUNTY.
2. ALL CONSTRUCTION SHALL CONFORM TO PIMA COUNTY/CITY OF TUCSON STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS, LATEST EDITION.
3. THE CONTRACTOR SHALL SUPPLY ALL STAKES SET FOR THE LINES, LEVELS OR MEASUREMENTS OF THE WORK IN THEIR PROPER PLACES AND IT SHALL BE CERTIFIED BY A "REGISTERED LAND SURVEYOR". ANY EXPENSE INCURRED IN REPLACING ANY STAKES WHICH THE CONTRACTOR OR HIS SUBORDINATES MAY HAVE FAILED TO PRESERVE SHALL BE THE CONTRACTORS RESPONSIBILITY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE, MAINTENANCE, REPAIR OR REPLACEMENT OF EXISTING IMPROVEMENTS IN THE WORK AREA WHICH HAVE BEEN REMOVED OR DAMAGED DURING THE COURSE OF CONSTRUCTION. ALL REPAIR, REPLACEMENT, OR CLEANUP SHALL BE DONE TO THE SATISFACTION OF THE OWNER.
5. THE CONTRACTOR IS REQUIRED TO CONTACT "BLUE STAKE" (1-800-782-5348) 48 HOURS PRIOR TO ANY EXCAVATION TO DETERMINE ACCURATE UTILITY LOCATIONS.
6. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH, HAUL AND APPLY ALL WATER REQUIRED FOR COMPACTION AND THE CONTROL OF DUST FROM CONSTRUCTION ACTIVITY. THE COST THEREOF IS TO BE INCIDENTAL TO THE CONSTRUCTION PROJECT. IF EFFLUENT IS USED FOR DUST CONTROL, HEALTH AND SAFETY STANDARDS MUST BE MET.
7. THE CONTRACTOR SHALL EMPLOY A GEOTECHNICAL ENGINEER TO OBSERVE, INSPECT AND TEST ALL GRADING OPERATIONS ASSOCIATED WITH THE IRRIGATION PUMP STATION AND THE DETENTION STRUCTURE. THE SAID ENGINEER SHALL CERTIFY THAT ALL GRADING OPERATIONS WERE PERFORMED IN ACCORDANCE WITH APPLICABLE PLANS.
8. PIMA COUNTY FLOOD CONTROL AND THEIR ENGINEER SHALL REVIEW ALL SHOP DRAWINGS AND EQUIPMENT SUBMITTALS FOR COMPLIANCE WITH PLANS AND SPECIFICATIONS, PRIOR TO CONSTRUCTION.
9. ALL GRADING SHALL BE IN CONFORMANCE WITH PIMA COUNTY GRADING GRADING ORDINANCE, LATEST EDITION.
10. ALL FOREIGN MATERIALS ENCOUNTERED AS A RESULT OF CONSTRUCTING THIS PROJECT INCLUDING BUT NOT LIMITED TO ROCK, ORGANIC DEBRIS AND EXISTING PIPING OR CONCRETE SHALL BE REMOVED AND DISPOSED AT THE CONTRACTORS EXPENSE. ALL DEBRIS SHALL BE DISPOSED OF AT AN AUTHORIZED COUNTY LANDFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL ASSOCIATED COSTS INCLUDING DUMP FEES.
11. THE CONTRACTOR IS REQUIRED TO VISIT THE PROPOSED SITE AND FAMILIARIZE HIM/HERSELF WITH EXISTING SITE CONDITIONS, PRIOR TO SUBMITTING A BID FOR THE PROJECT.
12. ALL EXPOSED PVC PIPING SHALL BE COATED WITH LATEX PAINT FOR PROTECTION FROM U.V. RAYS. COLOR TO BE 'SIERRA BROWN' SEE SPECIFICATIONS.
13. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE OCCUPATION SAFETY AND HEALTH ADMINISTRATION REGULATIONS.
14. CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED BY GOVERNMENTAL AGENCIES.
15. ALL MANIFOLD PIPING SHALL BE WELDED STEEL STANDARD GRADE AND MEET AWWA C200-97 OR DUCTILE IRON, AWWA C151, CLASS 52, WITH ALL JOINTS RESTRAINED. ALL ABOVE GROUND D.I.P. PIPING SHALL BE FLANGED. ALL SITE PIPING SHALL HAVE A MINIMUM DEPTH OF COVER 36", UNLESS OTHERWISE SPECIFIED HEREIN.
16. ALL ABOVE GROUND STEEL PIPING, VALVES AND FITTINGS TO HAVE INTERIOR COATING IN ACCORDANCE WITH AWWA C-210, AND AN EXTERIOR COATING IN ACCORDANCE WITH AWWA 218. COLOR TO BE SELECTED BY OWNER. ALL INTERIOR COATINGS ARE TO CONFORM TO NFS SECTION 61 FOR POTABLE WATER STANDARDS.
17. ALL BELOW GROUND PIPING TO BE THRUST BLOCKED PER TUCSON WATER STD. 610, UNLESS NOTED OTHERWISE. MECHANICAL JOINT RESTRAINED FITTINGS (MEGA LUG, LOK-TYTE, LOK-FAST OR EQUAL) CAN BE USED IN PLACE OF THRUST BLOCKING. ALL JOINTS WITHIN THE IRRIGATION PUMPS STATION SITE SHALL BE MECHANICALLY RESTRAINED JOINTS IF UNDERGROUND, OR WELDED STEEL ABOVE GROUND.
18. ALL BUTTERFLY VALVES, SHALL CONFORM TO AWWA C-504.
19. ALL TRANSITIONS BETWEEN DUCTILE IRON AND STEEL PIPING SHALL BE MADE USING APPROVED ADAPTORS AND FLANGE INSULATION KIT PER TUCSON WATER STANDARD DETAIL 704. (SUBMITTAL REQUIRED).
20. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE CEMENT-MORTAR LINED IN ACCORDANCE WITH AWWA C-104. ALL UNDERGROUND DUCTILE IRON PIPE SHALL BE WRAPPED PER AWWA C-105.
21. THE SITE WITHIN THE ENCLOSURE SHALL BE FILLED, GRADED AND COMPACTED TO 95 PERCENT PROCTOR AS DETERMINED BY AASHTO T-99 METHOD A. 2" OF 3/4" GRAVEL SHALL BE PLACED WITHIN THE ENTIRE FENCED AREA.

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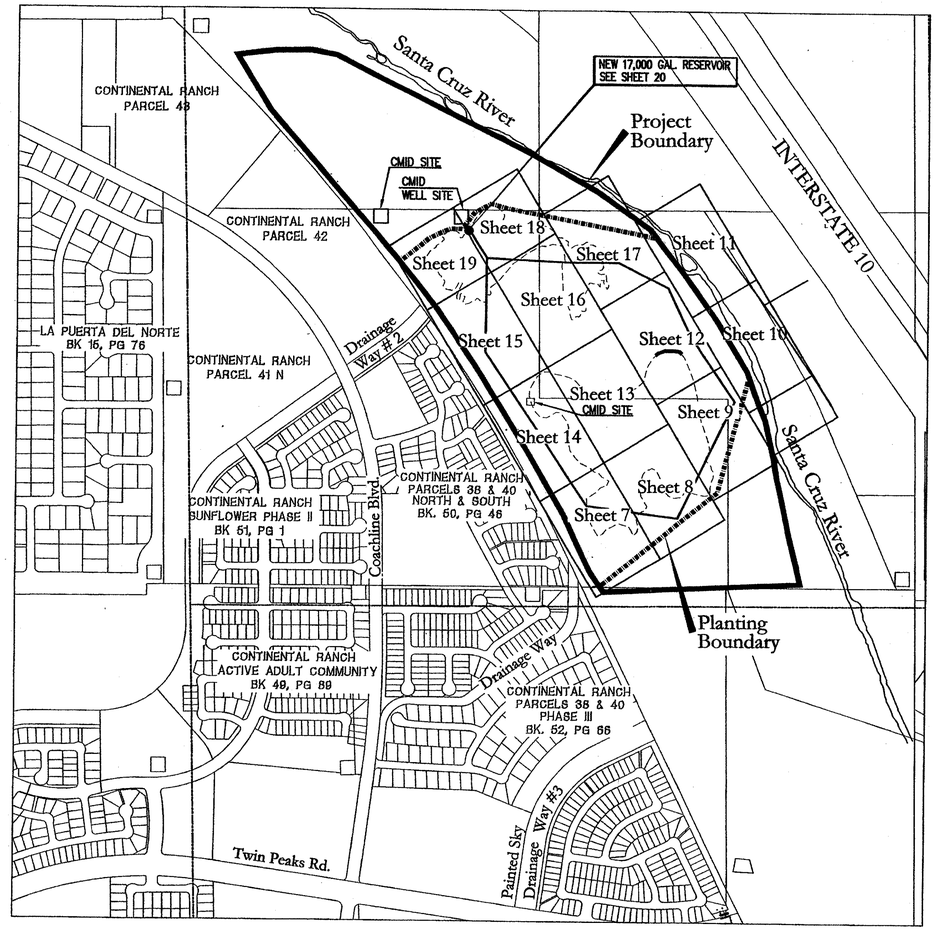

22. WELDED STEEL RESERVOIR TO BE INSTALLED PER SECTION 604 IN THE SPECIAL PROVISIONS. (SHOP DRAWINGS REQUIRED).
23. 17,000 GAL. RESERVOIR COATING SHALL BE IN ACCORDANCE WITH SECTION 610. IN THE SPECIAL PROVISIONS.
24. TANK FOUNDATION RING COATING SPECIFICATIONS SHALL BE AS FOLLOWS:
    - PRIME COAT, 1.5 MILS, DFT KOPPERS 654 EPOXY PRIMER OF EQUAL
    - FINISH COATS, (2) 20 MILS, DFT KOPPERS BITUMASTIC 300-M, OR EQUAL
    - TOTAL FINISH COAT, 21.5 MILS DRY FILM THICKNESS
25. OMISSIONS OR CONFLICT BETWEEN THE VARIOUS ELEMENTS OF THE DRAWING NOTES AND DETAILS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
26. IF UNANTICIPATED CONDITIONS ARE ENCOUNTERED DURING THE COURSE OF THE CONSTRUCTION AND ARE BEYOND THE SCORE OF THE DESIGN. THE ENGINEER SHALL SUBMIT THE NECESSARY REVISED OR SUPPLEMENTAL IMPROVEMENT PLANS FOR REVIEW AND APPROVAL BY THE WATER COMPANY AND THEIR ENGINEER.
27. A COPY OF THIS PLAN SHALL BE KEPT IN AN EASILY ACCESSIBLE LOCATION ON THE SITE AT ALL TIMES DURING CONSTRUCTION.
28. PROJECT IS IN THE 100 YR. FLOOD PLAIN, SITE IS SUBJECT TO FLOODING. SITE MAY BE SUBJECT TO DAMAGE OR LOSS DURING A FLOOD EVENT.

UTILITY STATEMENT

EXISTING ABOVE AND BELOW GROUND UTILITIES HAVE BEEN DELINEATED ON THESE PLANS BASED UPON FIELD SURVEY INFORMATION (PERFORMED BY OTHERS) AS WELL AS FROM BLUE STAKE MARKINGS AND UTILITY BASE MAPS (AS MADE AVAILABLE) AND THEREFORE THE ENGINEER MAKES NO GUARANTEE OF THE ACCURACY OR COMPLETENESS OF THE UTILITY LOCATIONS OR OF THE EXISTENCE OR NONEXISTENCE OF ANY UTILITY OR UNDERGROUND STRUCTURES SHOWN. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEANS NECESSARY TO PROTECT ANY UTILITY. **THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR DAMAGE TO EXISTING ABOVE OR UNDERGROUND UTILITIES, INCLUDING THOSE NOT SHOWN ON THESE PLANS.**

N
W E
S
500' 0' 500'
SCALE: 1" = 500'

LEGEND

2900	EXISTING TOPO
2900	PROPOSED TOPO
	SECTION LINE
	EXISTING ENCLOSURE FENCE
UE	EXISTING UNDERGROUND ELECTRIC
T	EXISTING UNDERGROUND TELEPHONE
W	EXISTING UNDERGROUND WATER
G	EXISTING UNDERGROUND GAS
OHE PP	EXISTING OVERHEAD ELECTRIC WITH POWER POLE
S	EXISTING SEWER AND MANHOLE
CMID	EXISTING CORTARO MARANA IRRIGATION DISTRICT - IRRIGATION LINE
FM	EXISTING SEWER FORCE MAIN
	PROPOSED PVC PIPE AND VALVE
	MESQUITE BOSQUE BOUNDARY
	PROJECT BOUNDARY
	PLANTING BOUNDARY
	EXISTING TREE TO REMAIN
N.I.C.	NOT IN CONTRACT

CMID NOTES

1. THE CONTRACTOR WILL NEED TO GIVE THE DISTRICT A 48-HOUR NOTIFICATION PRIOR TO ANY CONSTRUCTION ACTIVITY AT WELL SITE 16F1.
2. THE DISTRICT EASEMENT TO WELL SITE 16F1 SHALL BE MAINTAINED TO THE EXTENT IT IS UTILIZED BY THE CONTRACTOR DURING THE PROJECT.
3. NO OTHER UTILITIES OR FACILITIES ARE TO BE PLACED WITHIN THE DISTRICTS WELL SITE OR EASEMENT WITH THE EXEMPTION OF THE WATER CONNECTION BETWEEN THE WELL AND THE BOSQUE WELL CONTROL EQUIPMENT AND ELECTRICAL CONNECTION WITHOUT THE PRIOR CONSENT OF THE DISTRICT MANAGER.

BASIS OF BEARING

AN ASSUMED BEARING ALONG THE NORTH LINE OF SECTION 16
SAID BEARING BEING: S89°29'17"W

BASIS OF ELEVATION

FOUND MONUMENT AT THE NORTHWEST CORNER OF SECTION 16
TOWNSHIP 12 SOUTH, RANGE 12 EAST G.R.S.&M. PIMA COUNTY, ARIZONA
SAID ELEVATION = 2070.97 (NAVD88)

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

		DATE
DESIGNED	R.S./R.A.	3-2005
DRAWN	G.G.F.	3-2005
CHECKED	R.S./R.A.	3-2005
PROJ. ENGR	M.F.T.	3-2005

CORTARO MESQUITE BOSQUE
SHEET INDEX MAP, GENERAL NOTES & LEGEND
WELL# 16F1MB6

Registered Landscape Architect
Certificate No. 21435
STEVEN ROBERT SCHOMBURG
Date Signed 10-19-05
ARIZONA, U.S.A.

Registered Professional Engineer (Civil)
Certificate No. 22899
MARK F. TAYLOR
Date Signed 10-19-05
ARIZONA, U.S.A.

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Scales Horiz. = AS NOTED Vert.

SHEET 2 OF 42

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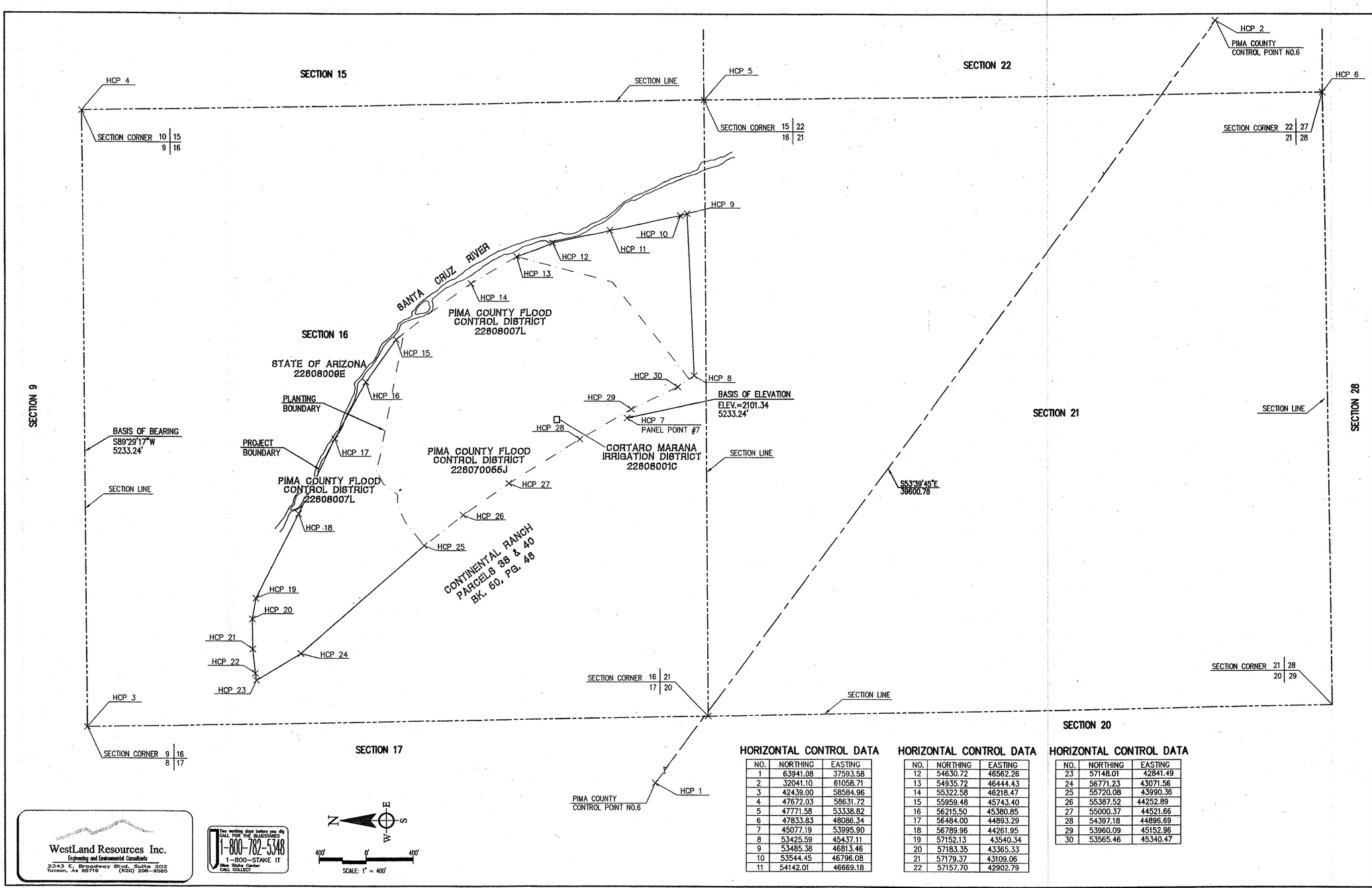

HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
1	63941.08	37593.58
2	32041.10	61058.71
3	42439.00	58584.96
4	47672.03	58631.72
5	47771.58	53338.82
6	47833.83	48086.34
7	45077.19	53995.90
8	53425.59	45437.11
9	53485.38	46813.46
10	53544.45	46796.08
11	54142.01	46669.18

HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
12	54630.72	46562.26
13	54935.72	46444.43
14	55322.58	46218.47
15	55959.48	45743.40
16	56215.50	45380.85
17	56484.00	44893.29
18	56789.96	44261.95
19	57152.13	43540.34
20	57183.35	43365.33
21	57179.37	43109.06
22	57157.70	42902.79

HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
23	57148.01	42841.49
24	56771.23	43071.56
25	55720.08	43990.36
26	55387.52	44252.89
27	55000.37	44521.66
28	54397.18	44896.69
29	53960.09	45152.96
30	53565.46	45340.47

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PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

CORTARO MESQUITE BIOSOLIDE
HORIZONTAL CONTROL SHEET
V.O.# 99-680 WPF

		DATE
DESIGNED	R.S./R.A.	2-2005
DRAWN	G.G.F.	2-2005
CHECKED	R.S./R.A.	2-2005
PROJ ENGR	M.F.T.	2-2005

Scales Horiz. 1"= 400' Vert. 1"=

SHEET 3 OF 42

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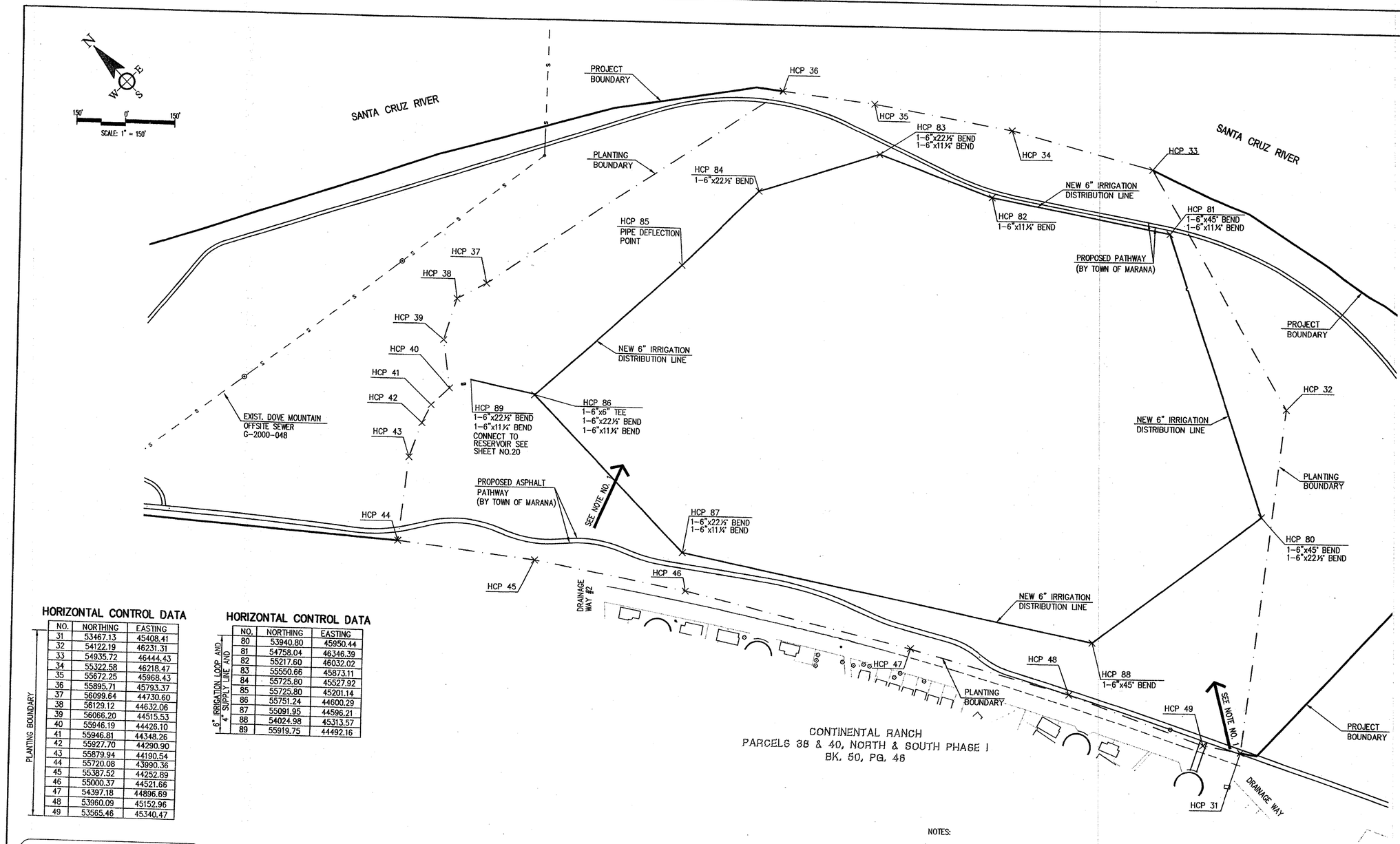

HORIZONTAL CONTROL DATA

PLANTING BOUNDARY

NO.	NORTHING	EASTING
31	53467.13	45408.41
32	54122.19	46231.31
33	54935.72	46444.43
34	55322.58	46218.47
35	55672.25	45968.43
36	55895.71	45793.37
37	56099.64	44730.60
38	56129.12	44632.06
39	56066.20	44515.53
40	55946.19	44426.10
41	55946.81	44348.26
42	55927.70	44290.90
43	55879.94	44190.54
44	55720.08	43990.36
45	55387.52	44252.89
46	55000.37	44521.66
47	54397.18	44896.69
48	53960.09	45152.96
49	53565.46	45340.47

HORIZONTAL CONTROL DATA

6" IRRIGATION LOOP AND 4" SUPPLY LINE AND

NO.	NORTHING	EASTING
80	53940.80	45950.44
81	54758.04	46346.39
82	55217.60	46032.02
83	55550.66	45873.11
84	55725.80	45527.92
85	55725.80	45201.14
86	55751.24	44600.29
87	55091.95	44596.21
88	54024.98	45313.57
89	55919.75	44492.16

NOTES:

1. CONTRACTOR TO GRADE AS NECESSARY TO ASSURE DRAINAGE FROM THE TWO INDICATED DRAINAGEWAYS DRAINS AT A MINIMUM 1% SLOPE FROM THE MARANA PATHWAY TOWARDS THE WETLANDS, AS INDICATED FOR AT LEAST 300'.

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PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

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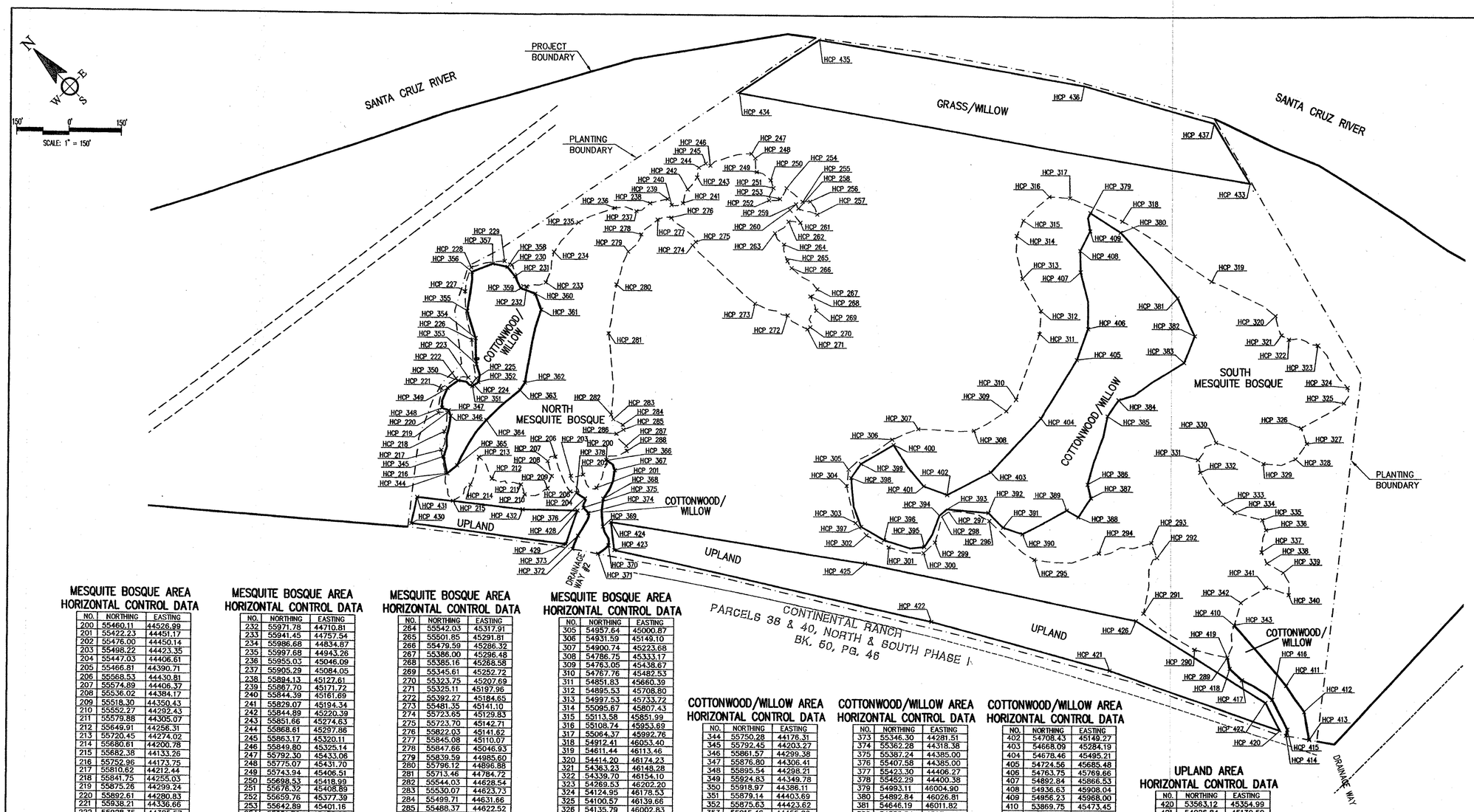
CHECKED	R.S./R.A.	3-2005
PROJ. ENGR	M.F.T.	3-2005

CORTARO MESQUITE BISQUE
HORIZONTAL CONTROL SHEET
VOLA SFCWDG

Registered Professional Engineer (Civil) Certificate No. 23898 MARK F. TAYLOR Date Signed 3-9-05 ARIZONA U.S.A.

Scales Horiz. 1"= 150' Vert. 1"=

SHEET 4 OF 42



MESQUITE BOSQUE AREA HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
200	55460.11	44526.99
201	55422.23	44451.17
202	55476.00	44450.14
203	55498.22	44423.35
204	55447.03	44406.61
205	55466.81	44390.71
206	55568.53	44430.81
207	55574.89	44406.37
208	55536.02	44384.17
209	55518.30	44350.43
210	55552.27	44292.43
211	55579.88	44305.07
212	55649.91	44256.31
213	55720.45	44274.02
214	55680.61	44200.78
215	55682.38	44133.26
216	55752.96	44173.75
217	55810.62	44212.44
218	55841.75	44255.03
219	55875.26	44299.24
220	55892.61	44280.83
221	55938.21	44336.66
222	55928.35	44385.57
223	55905.19	44412.26
224	55885.59	44409.49
225	55887.98	44427.32
226	55973.40	44493.17
227	56084.79	44575.12
228	56120.42	44634.85
229	56066.72	44716.26
230	56045.08	44723.96
231	55998.82	44702.81

MESQUITE BOSQUE AREA HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
232	55971.78	44710.81
233	55941.45	44757.54
234	55986.68	44834.87
235	55997.68	44943.26
236	55955.03	45046.09
237	55905.29	45084.05
238	55894.13	45127.81
239	55867.70	45171.72
240	55844.39	45161.69
241	55829.07	45194.34
242	55844.89	45220.39
243	55851.66	45274.63
244	55868.61	45287.86
245	55863.17	45320.11
246	55849.80	45325.14
247	55792.30	45433.06
248	55775.07	45431.70
249	55743.94	45406.51
250	55698.53	45418.99
251	55676.32	45408.89
252	55659.76	45377.39
253	55642.89	45401.16
254	55651.70	45435.83
255	55592.76	45441.65
256	55578.31	45456.97
257	55537.83	45445.52
258	55587.06	45419.18
259	55600.83	45422.83
260	55601.15	45399.61
261	55554.13	45394.83
262	55579.56	45372.89
263	55582.80	45321.90

MESQUITE BOSQUE AREA HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
264	55542.03	45317.91
265	55501.85	45291.81
266	55479.59	45286.32
267	55386.00	45296.48
268	55385.16	45268.58
269	55345.61	45252.72
270	55323.75	45207.69
271	55325.11	45197.96
272	55392.27	45184.65
273	55481.35	45141.10
274	55723.65	45129.83
275	55723.70	45142.71
276	55822.03	45141.82
277	55845.08	45110.07
278	55847.66	45046.93
279	55839.59	44985.60
280	55796.12	44896.88
281	55713.46	44784.72
282	55544.03	44628.54
283	55530.07	44623.73
284	55499.71	44631.66
285	55488.37	44622.52
286	55493.75	44600.41
287	55449.26	44595.81
288	55438.16	44587.13
289	53817.96	45395.25
290	53899.17	45344.47
291	54075.70	45313.99
292	54160.78	45451.73
293	54201.98	45469.69
294	54286.04	45343.05
295	54403.85	45198.05
296	54572.06	45183.64
297	54670.96	45119.15
298	54675.17	45095.55
299	54636.23	45030.01
300	54638.13	44985.93
301	54719.37	44926.64
302	54787.82	44905.37
303	54834.94	44908.17
304	54927.57	44963.74

MESQUITE BOSQUE AREA HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
305	54957.64	45000.87
306	54931.59	45149.10
307	54900.74	45223.68
308	54786.75	45333.17
309	54763.05	45438.67
310	54767.76	45482.53
311	54851.83	45660.39
312	54895.53	45708.80
313	54997.53	45733.72
314	55095.67	45807.43
315	55113.58	45851.99
316	55108.74	45953.69
317	55064.37	45992.76
318	54912.41	46053.40
319	54611.44	46113.46
320	54414.20	46174.23
321	54363.23	46148.28
322	54339.70	46154.10
323	54269.53	46202.20
324	54124.95	46176.53
325	54100.57	46139.66
326	54135.79	46002.83
327	54091.48	45983.03
328	54083.56	45929.00
329	54138.44	45855.10
330	54276.30	45801.77
331	54277.86	45730.94
332	54247.21	45710.00
333	54136.10	45692.30
334	54095.65	45698.65
335	54026.36	45740.22
336	53987.95	45727.24
337	53962.47	45674.73
338	53929.38	45663.24
339	53877.18	45676.80
340	53821.82	45644.04
341	53882.39	45612.44
342	53901.50	45532.09
343	53869.75	45473.45

COTTONWOOD/WILLOW AREA HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
344	55750.28	44176.31
345	55792.45	44203.27
346	55861.57	44299.38
347	55876.80	44306.41
348	55895.54	44298.21
349	55924.83	44349.78
350	55918.97	44386.11
351	55879.14	44403.69
352	55875.63	44423.62
353	55915.46	44455.26
354	55969.34	44504.49
355	56040.80	44540.82
356	56109.92	44627.56
357	56085.32	44686.16
358	56049.00	44710.77
359	55979.89	44695.54
360	55940.06	44714.29
361	55895.54	44694.36
362	55781.91	44518.55
363	55776.05	44493.94
364	55781.91	44363.84
365	55746.76	44212.65
366	55458.42	44527.31
367	55422.38	44523.78
368	55386.32	44443.28
369	55330.85	44387.77
370	55281.85	44360.94
371	55285.32	44323.84
372	55346.30	44281.51

COTTONWOOD/WILLOW AREA HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
373	55346.30	44281.51
374	55362.28	44318.38
375	55387.24	44385.00
376	55407.58	44385.00
377	55423.30	44406.27
378	55452.29	44400.38
379	54993.11	46004.90
380	54892.84	46026.81
381	54646.19	46011.82
382	54535.54	45971.46
383	54503.27	45897.66
384	54559.75	45691.25
385	54548.22	45635.90
386	54447.95	45457.16
387	54413.37	45436.40
388	54400.69	45372.98
389	54437.58	45362.60
390	54479.07	45224.22
391	54530.93	45197.70
392	54589.71	45197.70
393	54679.61	45120.44
394	54681.92	45092.77
395	54648.49	44999.36
396	54743.00	44931.33
397	54815.62	44911.72
398	54935.48	44988.98
399	54944.70	45037.41
400	54918.19	45141.20
401	54772.84	45112.37

COTTONWOOD/WILLOW AREA HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
402	54708.43	45149.27
403	54668.09	45284.19
404	54678.46	45495.21
405	54724.56	45685.48
406	54763.75	45769.66
407	54892.84	45866.53
408	54936.63	45908.04
409	54956.23	45968.00
410	53869.75	45473.45
411	53641.88	45456.81
412	53553.03	45441.35
413	53485.30	45395.85
414	53541.30	45357.16
415	53551.10	45371.76
416	53641.88	45400.76
417	53742.32	45379.50
418	53790.42	45377.36
419	53817.96	45395.25

GRASS/WILLOW AREA HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
433	54731.83	46386.26
434	55940.01	45527.63
435	55884.87	45796.25
436	55259.21	46247.15
437	54926.00	46434.22

UPLAND AREA HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
420	53963.12	45354.99
421	54026.84	45130.50
422	54483.07	44864.85
423	55280.91	44363.49
424	55324.48	44412.13
425	54733.62	44846.14
426	54075.45	45283.90
427	53649.14	45381.18
428	55414.24	44367.23
429	55369.36	44277.43
430	55720.88	44004.30
431	55762.02	44067.91
432	55526.42	44258.73

HORIZONTAL CONTROL DATA SHOWN ON THIS SHEET IS FOR LAYING OUT APPROXIMATE BOUNDARIES OF THE DIFFERENT VEGETATION AREAS SHOWN IN THESE PLANS

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Engineering and Environmental Consultants
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M:\PROJECTS\455.03\CORTARO-MESQUITE\CMB-5.DWG

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

		DATE
DESIGNED	R.S./R.A.	3-2005
DRAWN	G.G.F.	3-2005
CHECKED	R.S./R.A.	3-2005
PROJ ENGR	M.F.T.	3-2005

CORTARO MESQUITE BOSQUE
HORIZONTAL CONTROL SHEET
VIA STCMBG

Registered Professional Engineer (Civil)
CERTIFICATE NO. 22899
MARK F. TAYLOR
ARIZONA
Date Signed 03/15/05

Scales Horiz. 1"= 150' Vert. 1"=

SHEET 5 OF 42

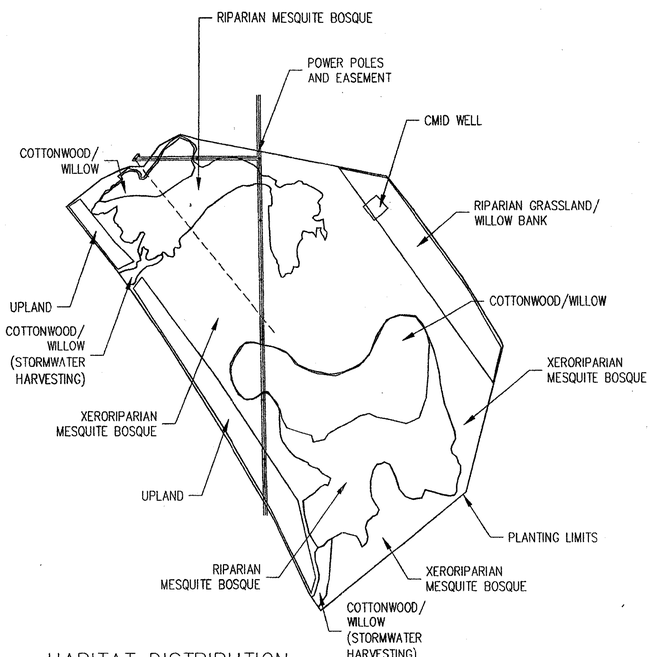
Page of

PLANTING PLANS FOR CORTARO BOSQUE RIPARIAN HABITAT RESTORATION

PLANT LIST

Symbol	Botanical Name	Common Name	Size	Quantity
	Acacia constricta	Whitethorn Acacia	1 gallon	753
	Acacia greggii	Catclaw Acacia	1 gallon	748
	Atriplex lentiformis	Quail Brush	1 gallon	316
	Baccharis salicifolia	Seep Willow	5 gallon	59
	Celtis pallida	Desert Hackberry	5 gallon	430
	Celtis reticulata	Net-Leaf Hackberry	5 gallon	354
	Celtis reticulata	Net-Leaf Hackberry	1 gallon	684
	Cercidium floridum	Blue Palo Verde	15/ 5 gallon*	237
	Cercidium microphyllum	Foothills Palo Verde	15/ 5 gallon*	13
	Chilopsis linearis	Desert Willow	15/ 5 gallon*	128
	Chilopsis linearis	Desert Willow	1 gallon	279
	Fraxinus velutina	Arizona Ash	15 gallon	121
	Fraxinus velutina	Arizona Ash	5 gallon	102
	Juglans nigra	Black Walnut	15/ 5 gallon*	70
	Populus fremontii	Fremont's Cottonwood	15 gallon	105
	Populus fremontii	Fremont's Cottonwood	5 gallon	168
	Prosopis pubescens	Screwbean Mesquite	15/ 5 gallon*	447
	Prosopis pubescens	Screwbean Mesquite	1 gallon	482
	Prosopis velutina	Velvet Mesquite	15/ 5 gallon*	995
	Prosopis velutina	Velvet Mesquite	1 gallon	984
	Salix exigua	Sandbar Willow	1 gallon	95
	Salix gooddingii	Gadding's Willow	5 gallon	12
	Salix gooddingii	Gadding's Willow	1 gallon	82
	Sambucus mexicana	Elderberry	1 gallon	234
	Zizyphus obtusifolia	Gray Thorn	1 gallon	299

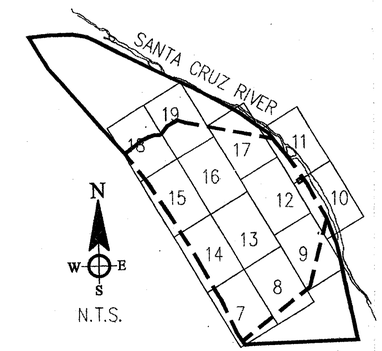
*15 gallons as available from Agency Nursery. All others 5 gallon.



HABITAT DISTRIBUTION

SCALE: 1"=400'

SHEET KEY:



NOTES:

1. ALL CONTAINER PLANTS SHALL BE AQUIRED FROM THE AGENCY NURSERY. BROWSER CAGES ARE TO BE INSTALLED AS NEEDED WITH DIRECTION FROM THE CONTRACTING AGENCY.

2. IRRIGATION WILL BE DONE IMMEDIATELY AFTER PLANTING AND WILL CONTINUE ACCORDING TO THE IRRIGATION SCHEDULE.

3. CONTAINER PLANTS WILL BE PLANTED BY HAND AND/OR WITH A TRUCK MOUNTED AUGER.

4. PLANT QUANTITIES ARE APPROXIMATE. FINAL QUANTITIES TO BE DETERMINED BY CONTRACTOR BASED ON ACTUAL NUMBER OF PLANT SYMBOLS SHOWN ON PLAN.

5. SEE SHEET L-20 FOR SEED MIXES AND SEEDING PLAN

6. ALL PLANTS WILL BE GROWN BY THE PIMA COUNTY NATIVE PLANT NURSERY.

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NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

DESIGNED SSB
DRAWN SSB, SLB
CHECKED SSB

DATE
01-2005
03-2005
03-2005

CORTARO MESQUITE BOSQUE
PLANTING PLAN OVERVIEW
V.0.A SFCDBG

Registered Landscape Architect
CERTIFICATE NO. 22401
KAREN M. CESARE
Date Signed 3-24-05
ARIZONA, U.S.A.

Novak Environmental, Inc.
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50' GRID PROVIDED TO AID IN DETERMINING PROPER PLANT PLACEMENT IN FIELD

SEE SHEET 6 FOR PLANT LEGEND

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

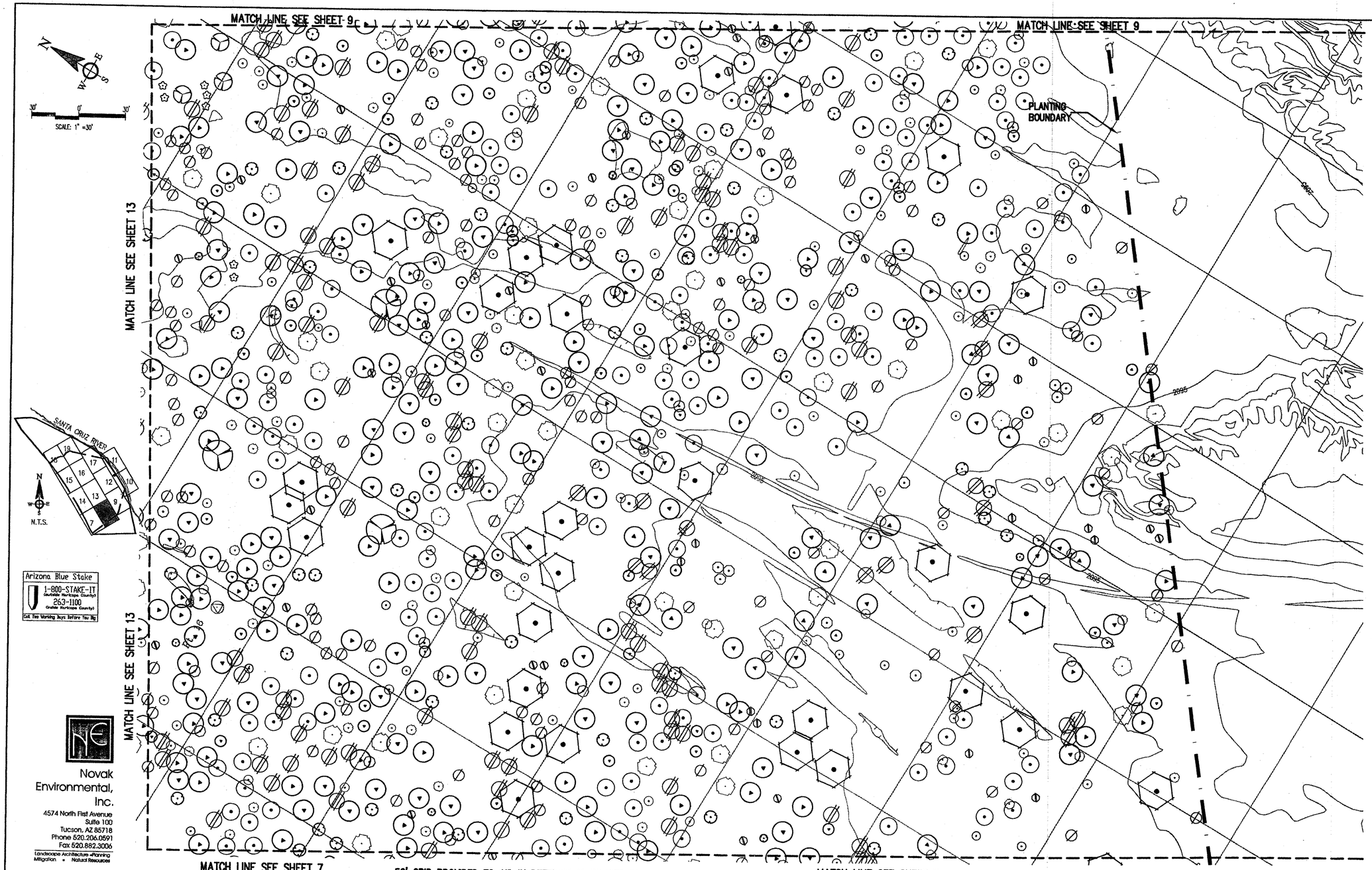
CORTARO MESQUITE BOSQUE
PLANTING PLANS
WILH SF CHNG

		DATE
DESIGNED	SSB	01-2005
DRAWN	SSB, SLB	03-2005
CHECKED	KMC	03-2005

Registered Landscape Architect
CERTIFICATE NO. 22401
KAREN M. CESARE
ARIZONA U.S.A.
3-24-05

Scales Horiz. 1"= 30'
Vert. 1"=

SHEET 7 OF 42



PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

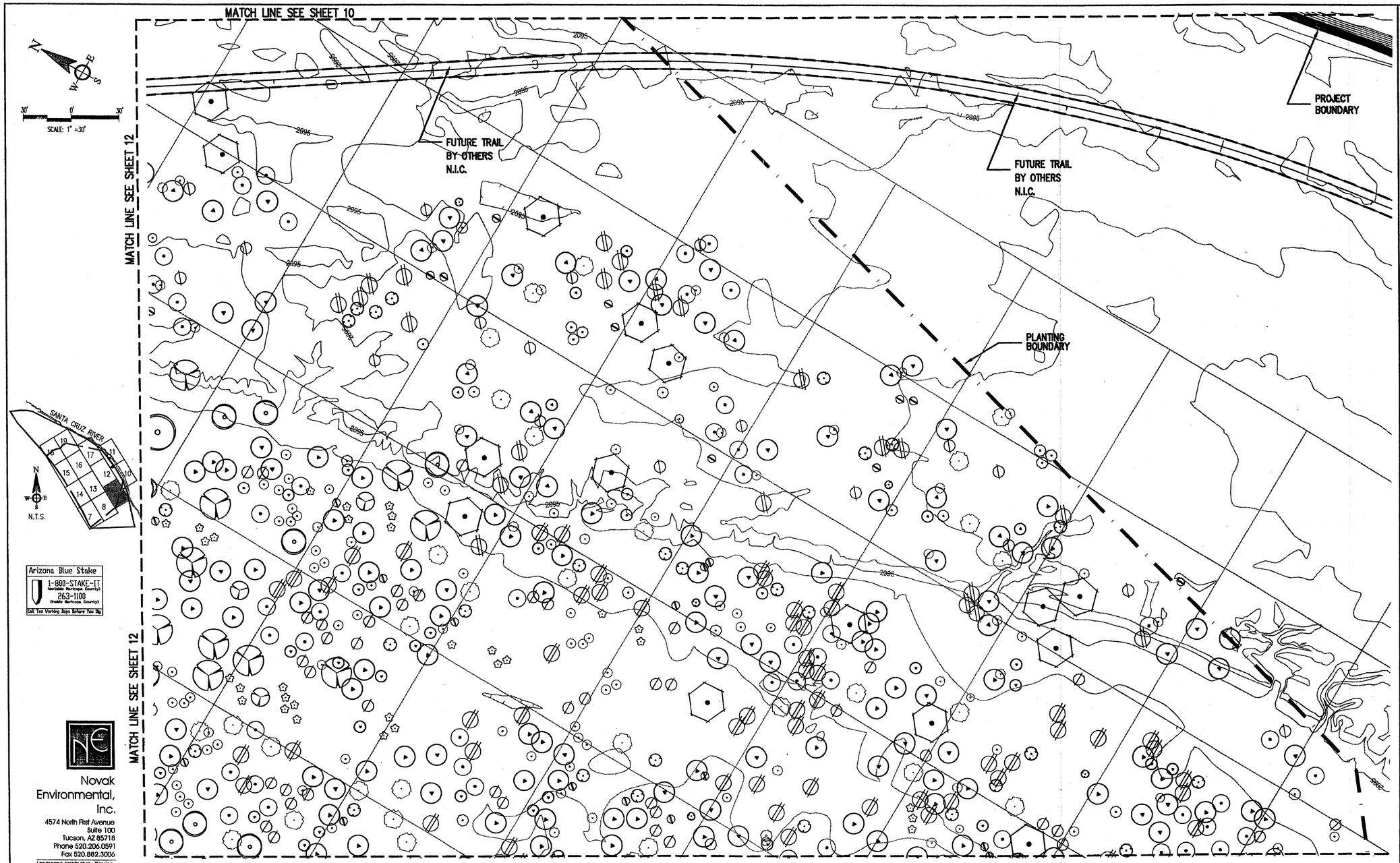
CORTARO MESQUITE BOSQUE
PLANTING PLAN
WALK SECTION

		DATE
DESIGNED	S.S.B	01-2005
DRAWN	S.S.B, S.L.B	03-2005
CHECKED	K.M.C	03-2005

Registered Landscape Architect
Certificate No. 22401
KAREN M. CESARE
Date Signed 3-24-05
ARIZONA U.S.A.

Scales Horiz. 1"= 30'
Vert. 1"=

SHEET 8 OF 42



PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

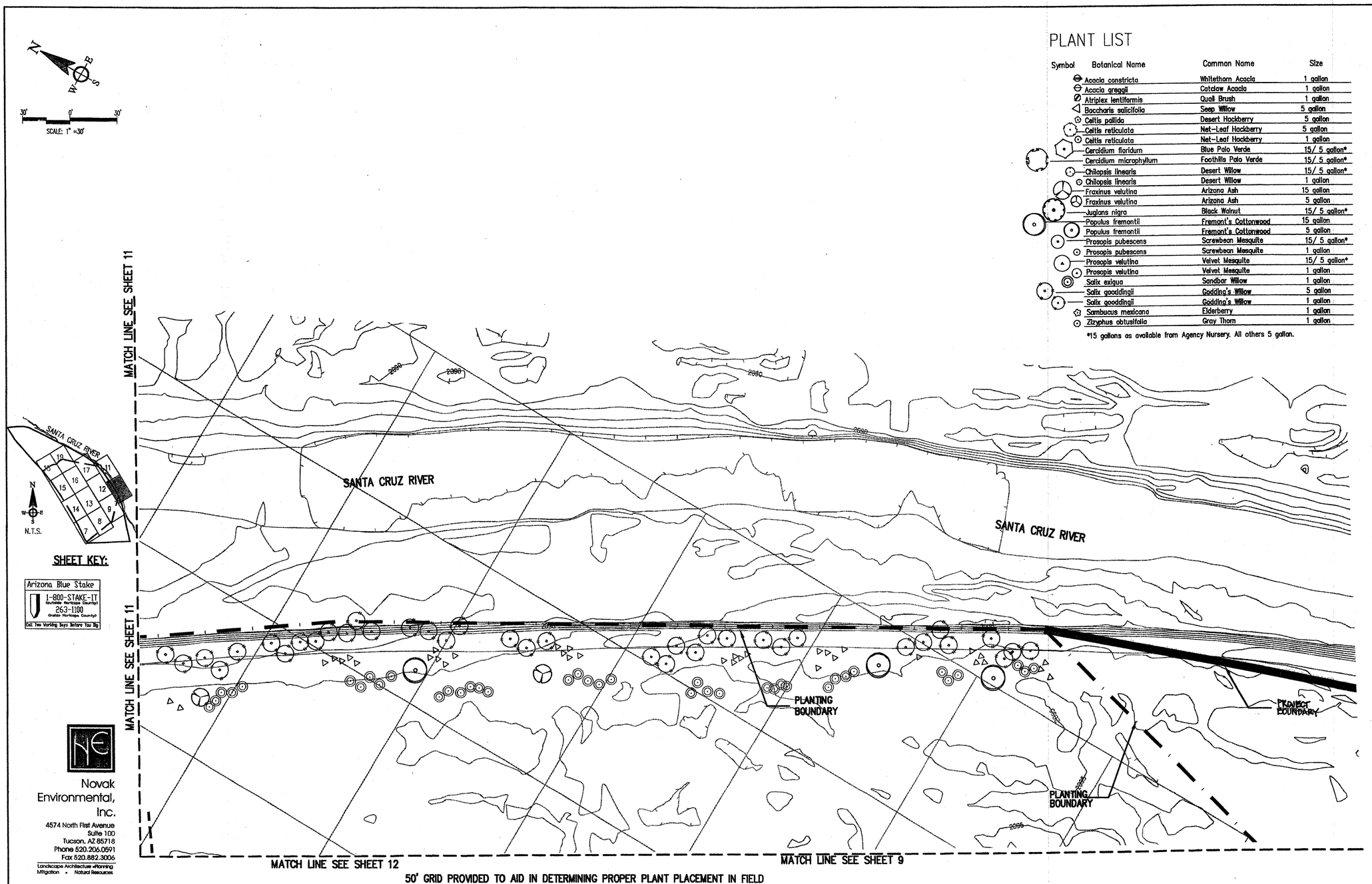
CORTARO MESQUITE BOSQUE
LANDSCAPE PLANS
WITH SECTIONS

		DATE
DESIGNED	SSB	01-2005
DRAWN	SSB, SLB	03-2005
CHECKED	KMC	03-2005

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 22401
KAREN M. CESARE
3-24-05
ARIZONA, U.S.A.

Scales Horiz. 1"= 30'
Vert. 1"=

SHEET 9 OF 42



PLANT LIST

Symbol	Botanical Name	Common Name	Size
	Acacia constricta	Whitethorn Acacia	1 gallon
	Acacia greggii	Catclaw Acacia	1 gallon
	Atriplex lentiformis	Quail Brush	1 gallon
	Baccharis salicifolia	Seep Willow	5 gallon
	Celtis pallida	Desert Hackberry	5 gallon
	Celtis reticulata	Net-Leaf Hackberry	5 gallon
	Celtis reticulata	Net-Leaf Hackberry	1 gallon
	Cercidium floridum	Blue Palo Verde	15/ 5 gallon*
	Cercidium microphyllum	Foothills Palo Verde	15/ 5 gallon*
	Chilopsis linearis	Desert Willow	15/ 5 gallon*
	Chilopsis linearis	Desert Willow	1 gallon
	Fraxinus velutina	Arizona Ash	15 gallon
	Fraxinus velutina	Arizona Ash	5 gallon
	Juglans nigra	Black Walnut	15/ 5 gallon*
	Populus fremontii	Fremont's Cottonwood	15 gallon
	Populus fremontii	Fremont's Cottonwood	5 gallon
	Prosopis pubescens	Screwbean Mesquite	15/ 5 gallon*
	Prosopis pubescens	Screwbean Mesquite	1 gallon
	Prosopis velutina	Velvet Mesquite	15/ 5 gallon*
	Prosopis velutina	Velvet Mesquite	1 gallon
	Salix exigua	Sandbar Willow	1 gallon
	Salix gooddingii	Gooding's Willow	5 gallon
	Salix gooddingii	Gooding's Willow	1 gallon
	Sambucus mexicana	Elderberry	1 gallon
	Zizyphus obtusifolia	Gray Thorn	1 gallon

*15 gallons as available from Agency Nursery. All others 5 gallon.

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

		DATE
DESIGNED	SSB	01-2005
DRAWN	SSB, SLB	03-2005
CHECKED	KMC	03-2005

CORTARO MESQUITE INTERCHANGE
PLANTING PLANS
VIEW STORMS

Novak Landscape Architect
CERTIFICATE NO. 22401
KAREN M. CESARE
ARIZONA U.S.A.
3-24-05

Scales Horiz. 1'= 30'
Vert. 1'=

SHEET 10 OF 42

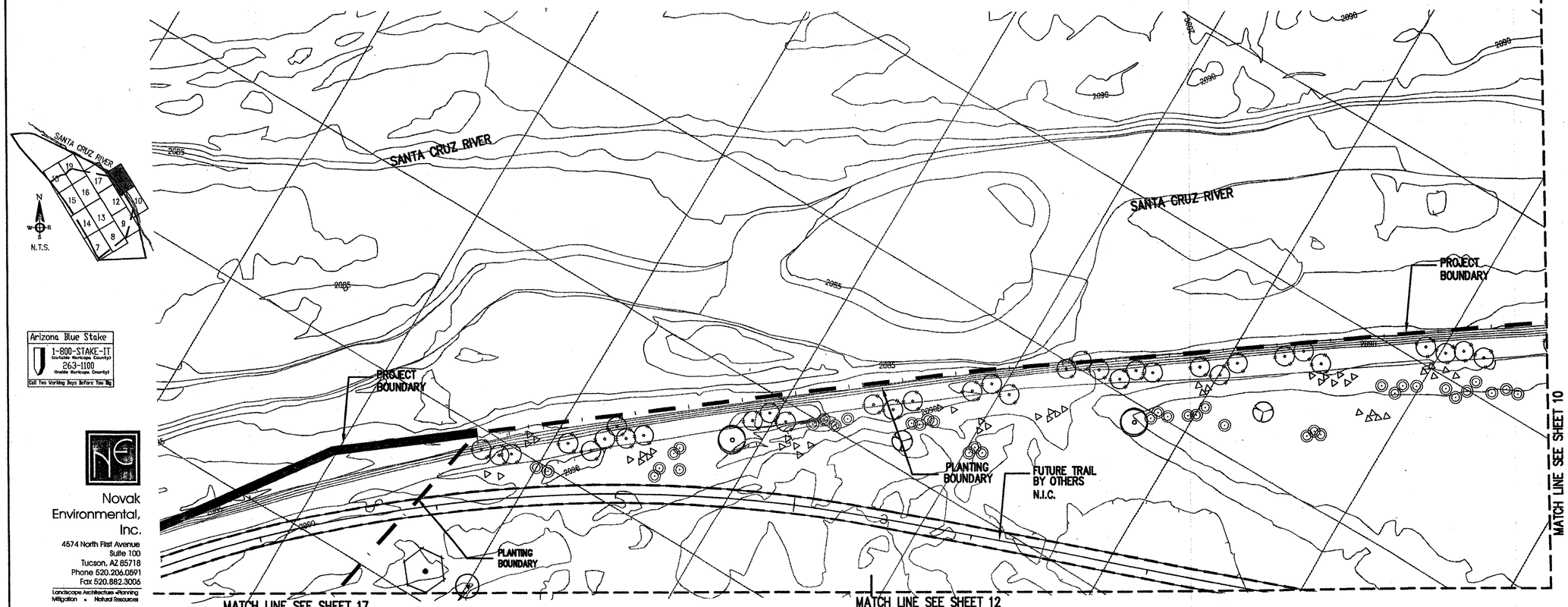
PLANT LIST

Symbol	Botanical Name	Common Name	Size
	Acacia constricta	Whitethorn Acacia	1 gallon
	Acacia greggii	Catclaw Acacia	1 gallon
	Atriplex lentiformis	Quail Brush	1 gallon
	Baccharis salicifolia	Seep Willow	5 gallon
	Celtis pallida	Desert Hackberry	5 gallon
	Celtis reticulata	Net-Leaf Hackberry	5 gallon
	Celtis reticulata	Net-Leaf Hackberry	1 gallon
	Cercidium floridum	Blue Palo Verde	15/ 5 gallon*
	Cercidium microphylum	Foothills Palo Verde	15/ 5 gallon*
	Chilopsis linearis	Desert Willow	15/ 5 gallon*
	Chilopsis linearis	Desert Willow	1 gallon
	Fraxinus velutina	Arizona Ash	15 gallon
	Fraxinus velutina	Arizona Ash	5 gallon
	Jugians nigra	Black Walnut	15/ 5 gallon*
	Populus fremontii	Fremont's Cottonwood	15 gallon
	Populus fremontii	Fremont's Cottonwood	5 gallon
	Prosopis pubescens	Screwbean Mesquite	15/ 5 gallon*
	Prosopis pubescens	Screwbean Mesquite	1 gallon
	Prosopis velutina	Velvet Mesquite	15/ 5 gallon*
	Prosopis velutina	Velvet Mesquite	1 gallon
	Salix exigua	Sandbar Willow	1 gallon
	Salix gooddingii	Godding's Willow	5 gallon
	Salix gooddingii	Godding's Willow	1 gallon
	Sambucus mexicana	Elderberry	1 gallon
	Zizyphus obtusifolia	Gray Thorn	1 gallon

*15 gallons as available from Agency Nursery. All others 5 gallon.

N E S W

30' 0' 30'
SCALE: 1" =30'



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PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

CORTARO MESQUITE BOSQUE
PLANTING PLANS
WBIA SFCMBG

		DATE
DESIGNED	SSB	01-2005
DRAWN	SSB, SLB	03-2005
CHECKED	KMC	03-2005

MATCH LINE SEE SHEET 11

ARIZONA LANDSCAPE ARCHITECT CERTIFICATE NO. 22401 KAREN M. CESARE Date Signed 3-24-05 ARIZONA, U.S.A.

Scales Horiz. 1"= 30' Vert. 1"=

SHEET 11 OF 42

MATCH LINE SEE SHEET 11

MATCH LINE SEE SHEET 10

MATCH LINE SEE SHEET 18

MATCH LINE SEE SHEET 9

MATCH LINE SEE SHEET 17

MATCH LINE SEE SHEET 8

MATCH LINE SEE SHEET 16

MATCH LINE SEE SHEET 13

FUTURE TRAIL BY OTHERS N.I.C.

SEE DETAIL SHEET 23

SCALE: 1" =30'

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SEE SHEET 6 FOR PLANT LEGEND

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

CORTARO MESQUITE BIOSWALE
PLANTING PLANS
WALK SECTIONS

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

		DATE
DESIGNED	SSB	01-2005
DRAWN	SSB, SLB	03-2005
CHECKED	KMC	03-2005

Registered Landscape Architect
CERTIFICATE NO. 22401
KAREN M. CESARE
ARIZONA U.S.A.
3-24-05

Scales Horiz. 1"= 30'
Vert. 1"=

SHEET 12 OF 42

MATCH LINE SEE SHEET 12

MATCH LINE SEE SHEET 9

MATCH LINE SEE SHEET 16

MATCH LINE SEE SHEET 8

MATCH LINE SEE SHEET 16

MATCH LINE SEE SHEET 8

MATCH LINE SEE SHEET 14

MATCH LINE SEE SHEET 14

N

W E

S

30' 0' 30'

SCALE: 1" =30'

SANTA CRUZ RIVER

N

W E

S

N.T.S.

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SEE SHEET 6 FOR PLANT LEGEND

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

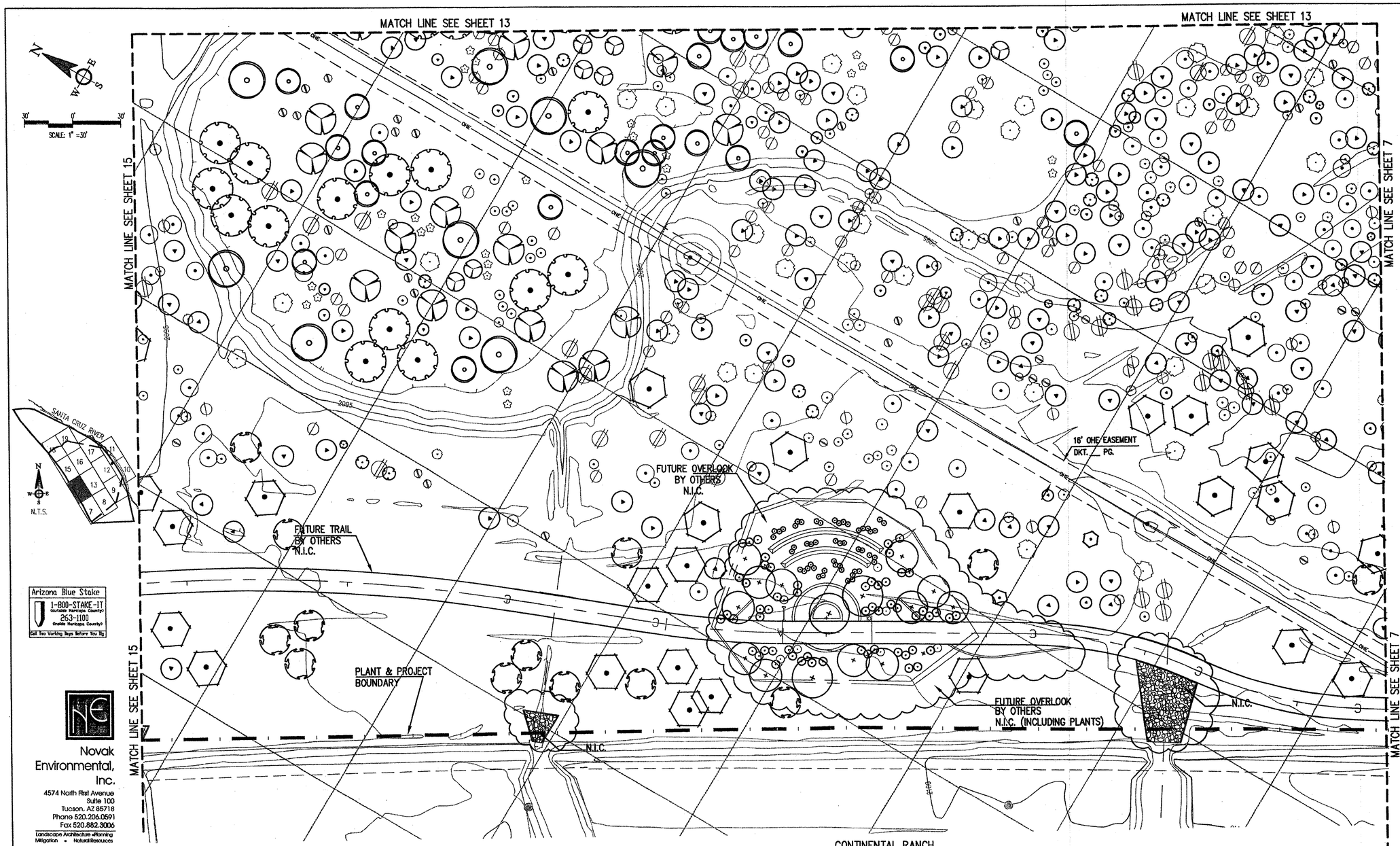
CORTARO MESQUITE BOSQUE
PLANTING PLANS
W.O.# 5F0060

		DATE
DESIGNED	SSB	01-2005
DRAWN	SSB, SLB	03-2005
CHECKED	SSB	03-2005

Registered Landscape Architect
CERTIFICATE NO.
22401
KAREN M. CESARE
Expires 3-31-05
ARIZONA U.S.A.

Scales Horiz. 1"= 30'
Vert. 1"=

SHEET 13 OF 42



SEE SHEET 6 FOR PLANT LEGEND

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

CORTARO MESQUITE BOSQUE
PLANTING PLANS
WALL SPONG

		DATE
DESIGNED	SSB	01-2005
DRAWN	SSB, SLB	03-2005
CHECKED	KMC	03-2005

NORTH LANDSCAPE ARCHITECT CERTIFICATE NO. 22401 KAREN M. CESARE EXP. DATE 3-31-05 ARIZONA U.S.A.

Scales Horiz. 1"= 30' Vert. 1"=

SHEET 14 OF 42

MATCH LINE SEE SHEET 16

MATCH LINE SEE SHEET 16

MATCH LINE SEE SHEET 18

MATCH LINE SEE SHEET 18

MATCH LINE SEE SHEET 14

MATCH LINE SEE SHEET 14

SCALE: 1" =30'

SANTA CRUZ RIVER

N.T.S.

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PLANT & PROJECT BOUNDARY

N.I.C.

2095

CONTINENTAL RANCH
PARCELS 38 & 40
NORTH & SOUTH
BK. 50, PG. 46

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SEE SHEET 6 FOR PLANT LEGEND

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PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

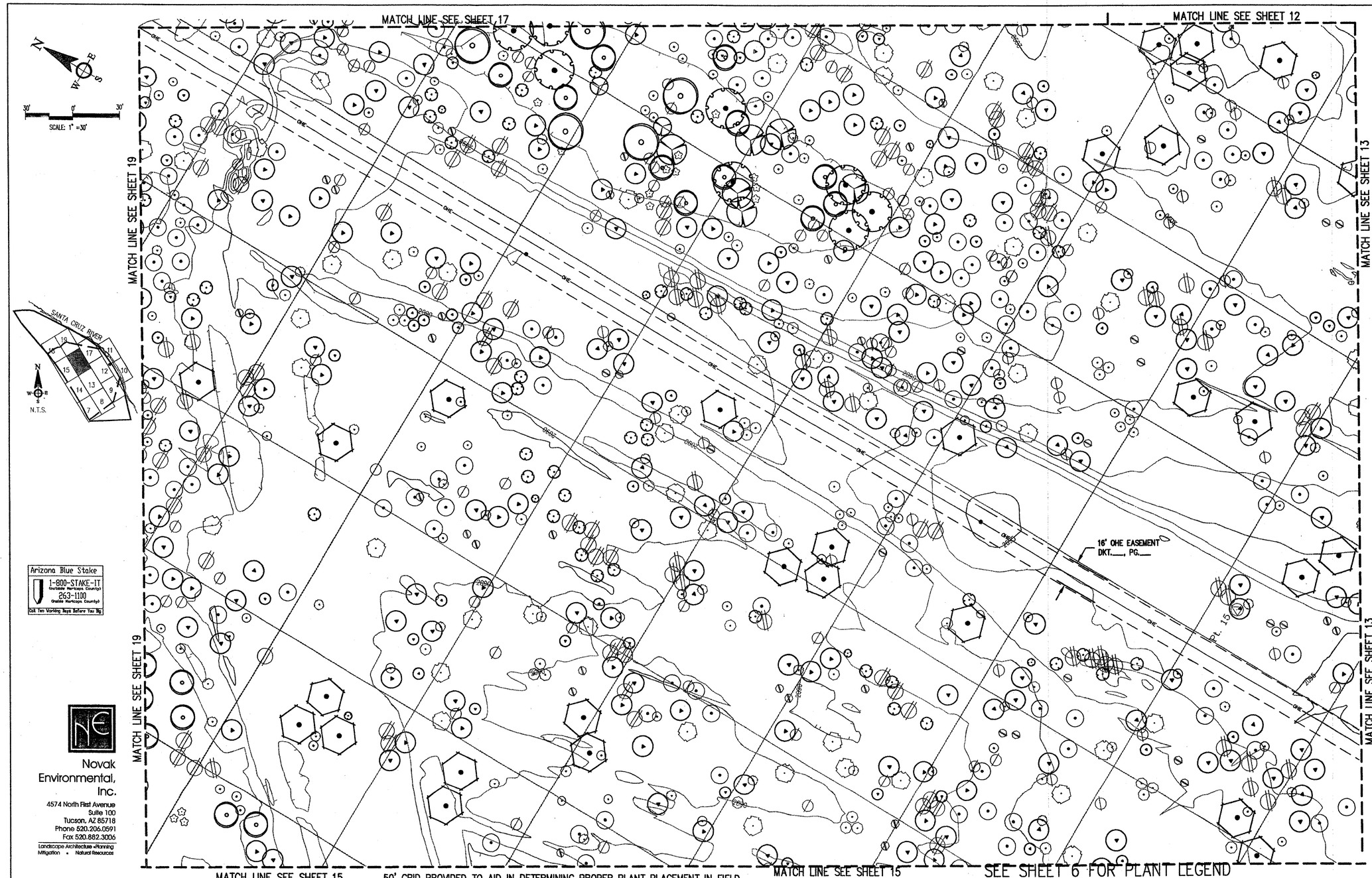
CORTARO MESQUITE BIOSWALE
PLANTING PLANS
WLIA SFCMB6

		DATE
DESIGNED	SSB	01-2005
DRAWN	SSB, SLB	03-2005
CHECKED	KMC	03-2005

Arizona Landscape Architect
CERTIFICATE NO. 22401
KAREN M. CESARE
03-24-05
REGISTERED LANDSCAPE ARCHITECT

Scales Horiz. 1" = 30'
Vert. 1" =

SHEET 15 OF 42



PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

CORTARO MESQUITE BOSQUE
PLANTING PLANS
WALM SPONG

		DATE
DESIGNED	SSB	01-2005
DRAWN	SSB, SLB	03-2005
CHECKED	KMC	03-2005

Registered Landscape Architect
Certificate No. 22401
KAREN M. CESARE
Date Signed 3-24-05
ARIZONA, U.S.A.

Scales Horiz. 1'= 30'
Vert. 1'=

SHEET 16 OF 42

MATCH LINE SEE SHEET 11

SCALE: 1" =30'

FUTURE TRAIL– BY OTHERS
N.I.C.

PLANTING BOUNDARY

16' OHE EASEMENT
DKT. , PG.

SANTA CRUZ RIVER

N.T.S.

Arizona Blue Stake
1-800-STAKE-IT
Outside Maricopa County
263-1100
Inside Maricopa County
Call Two Working Days Before You Dig

Novak Environmental, Inc.
4574 North First Avenue
Suite 100
Tucson, AZ 85718
Phone 520.206.0591
Fax 520.882.3006
Landscape Architecture • Planning
Mitigation • Natural Resources

MATCH LINE SEE SHEET 12

MATCH LINE SEE SHEET 19

50' GRID PROVIDED TO AID IN DETERMINING PROPER PLANT PLACEMENT IN FIELD

MATCH LINE SEE SHEET 16

SEE SHEET 6 FOR PLANT LEGEND

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

CORTARO MESQUITE BOSQUE
PLANTING PLANS
V.O.# 5T0086

		DATE
DESIGNED	SSB	01-2005
DRAWN	SSB, SLB	01-2005
CHECKED	KMC	01-2005

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 22401
KAREN M. CESARE
ARIZONA, U.S.A.
3-4-05

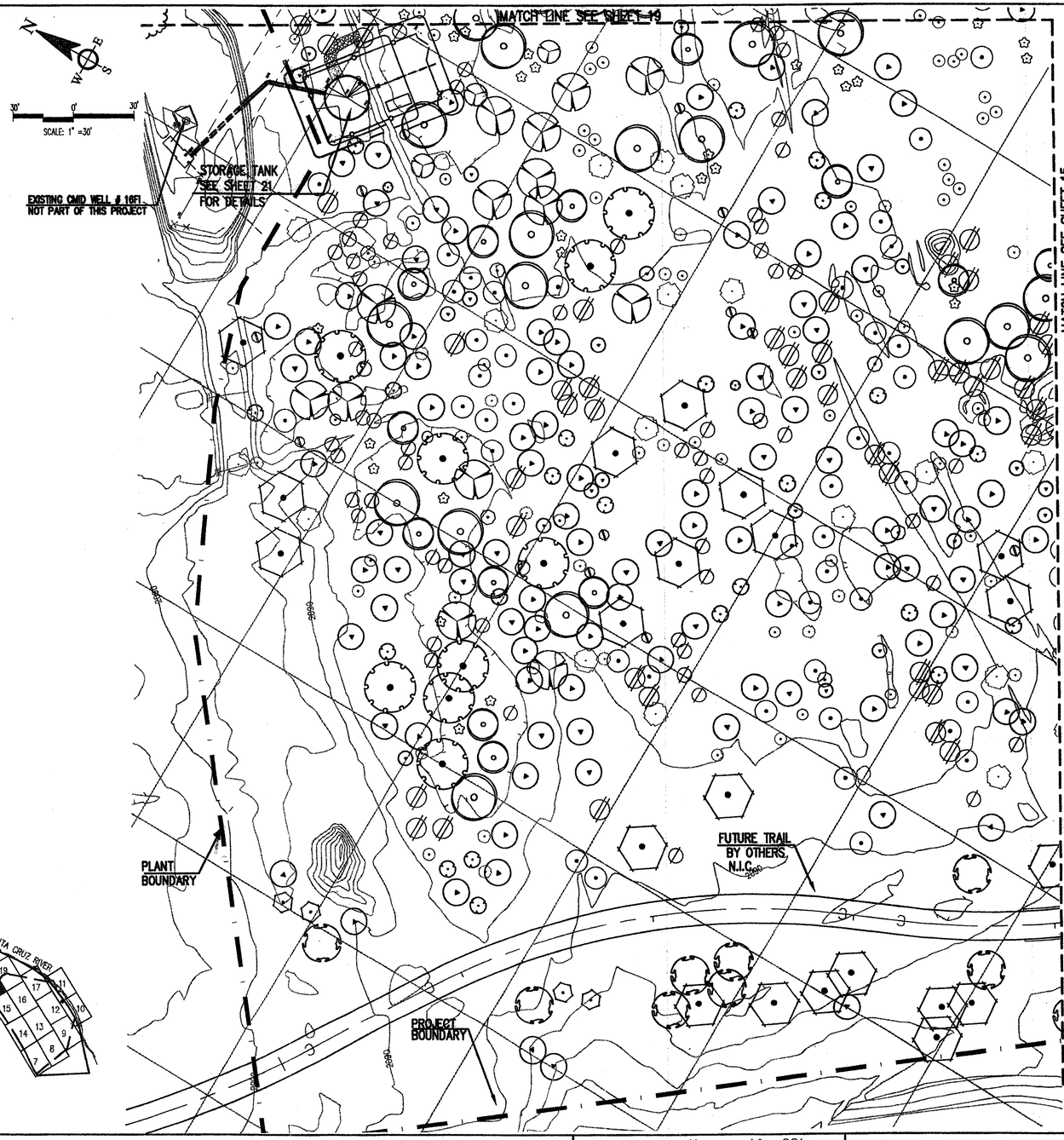
Scales Horiz. 1'= 30'
Vert. 1'=

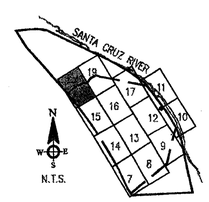
SHEET 17 OF 42

PLANT LIST

Symbol	Botanical Name	Common Name	Size
	Acacia constricta	Whitethorn Acacia	1 gallon
	Acacia greggii	Catclaw Acacia	1 gallon
	Atriplex lentiformis	Quail Brush	1 gallon
	Baccharis salicifolia	Seep Willow	5 gallon
	Celtis pallida	Desert Hackberry	5 gallon
	Celtis reticulata	Net-Leaf Hackberry	5 gallon
	Celtis reticulata	Net-Leaf Hackberry	1 gallon
	Cercidium floridum	Blue Palo Verde	15/ 5 gallon*
	Cercidium microphyllum	Foothills Palo Verde	15/ 5 gallon*
	Chilopsis linearis	Desert Willow	15/ 5 gallon*
	Chilopsis linearis	Desert Willow	1 gallon
	Fraxinus velutina	Arizona Ash	15 gallon
	Fraxinus velutina	Arizona Ash	5 gallon
	Juglans nigra	Black Walnut	15/ 5 gallon*
	Populus fremontii	Fremont's Cottonwood	15 gallon
	Populus fremontii	Fremont's Cottonwood	5 gallon
	Prosopis pubescens	Screwbean Mesquite	15/ 5 gallon*
	Prosopis pubescens	Screwbean Mesquite	1 gallon
	Prosopis velutina	Velvet Mesquite	15/ 5 gallon*
	Prosopis velutina	Velvet Mesquite	1 gallon
	Salix exigua	Sandbar Willow	1 gallon
	Salix goddingii	Godding's Willow	5 gallon
	Salix goddingii	Godding's Willow	1 gallon
	Sambucus mexicana	Elderberry	1 gallon
	Zizyphus obtusifolia	Gray Thorn	1 gallon

*15 gallons as available from Agency Nursery. All others 5 gallon.





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Fax 520.882.3086
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Mitigation • Natural Resources

Arizona Blue Stake
1-800-STAKE-IT (outside Pima County)
263-1100 (inside Maricopa County)
Call Two Working Days Before You Dig

50' GRID PROVIDED TO AID IN DETERMINING PROPER PLANT PLACEMENT IN FIELD

Scales Horiz. 1" = 30' Vert. 1" =

SHEET 18 OF 42

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

CORTARO MESQUITE BOSQUE
PLANTING PLAN
VIDA SPONG

DESIGNED	SSB
DRAWN	SSB, SLB
CHECKED	KMC

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

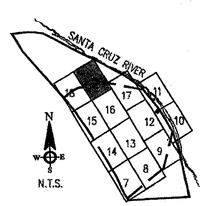
DATE
01-2005
03-2005
03-2005

Arizona Landscape Architect
CERTIFICATE NO. 22401
KAREN M. CESARE
Date Signed 3-24-05
ARIZONA U.S.A.

PLANT LIST

Symbol	Botanical Name	Common Name	Size
	Acacia constricta	Whitethorn Acacia	1 gallon
	Acacia greggii	Catclaw Acacia	1 gallon
	Atriplex lentiformis	Quail Brush	1 gallon
	Baccharis salicifolia	Seep Willow	5 gallon
	Celtis pallida	Desert Hackberry	5 gallon
	Celtis reticulata	Net-Leaf Hackberry	5 gallon
	Celtis reticulata	Net-Leaf Hackberry	1 gallon
	Cercidium floridum	Blue Palo Verde	15/ 5 gallon*
	Cercidium microphyllum	Foothills Palo Verde	15/ 5 gallon*
	Chilopsis linearis	Desert Willow	15/ 5 gallon*
	Chilopsis linearis	Desert Willow	1 gallon
	Fraxinus velutina	Arizona Ash	15 gallon
	Fraxinus velutina	Arizona Ash	5 gallon
	Juglans nigra	Black Walnut	15/ 5 gallon*
	Populus fremontii	Fremont's Cottonwood	15 gallon
	Populus fremontii	Fremont's Cottonwood	5 gallon
	Prosopis pubescens	Screwbean Mesquite	15/ 5 gallon*
	Prosopis pubescens	Screwbean Mesquite	1 gallon
	Prosopis velutina	Velvet Mesquite	15/ 5 gallon*
	Prosopis velutina	Velvet Mesquite	1 gallon
	Salix exigua	Sandbar Willow	1 gallon
	Salix gooddingii	Gooding's Willow	5 gallon
	Salix gooddingii	Gooding's Willow	1 gallon
	Sambucus mexicana	Elderberry	1 gallon
	Zizyphus obtusifolia	Gray Thorn	1 gallon

*15 gallons as available from Agency Nursery. All others 5 gallon.



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Phone 520.206.0591
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Outside Maricopa County
263-1100
Inside Maricopa County
Call Two Working Days Before You Dig

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

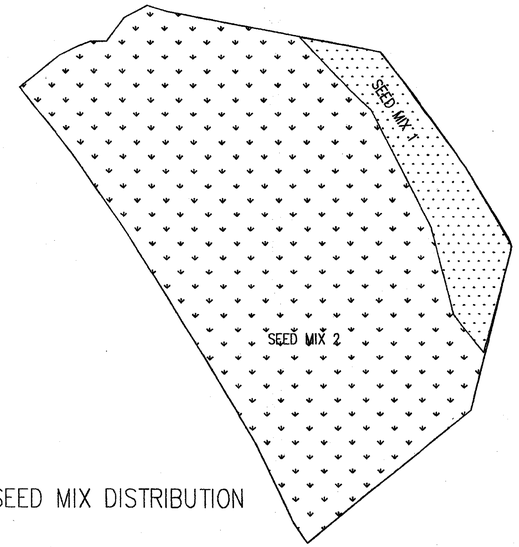
CORTARO MESQUITE BOSQUE
PLANTING PLANS
VOLIA SECTIONS

		DATE
DESIGNED	SSB	01-2005
DRAWN	SSB, SLB	03-2005
CHECKED	KWNC	03-2005

Registered Landscape Architect
CERTIFICATE NO. 22401
KAREN M. CESARE
Expires 3-31-06
ARIZONA, U.S.A.

Scales Horiz. 1"= 30'
Vert. 1"=

SHEET 19 OF 42



SEED MIX DISTRIBUTION

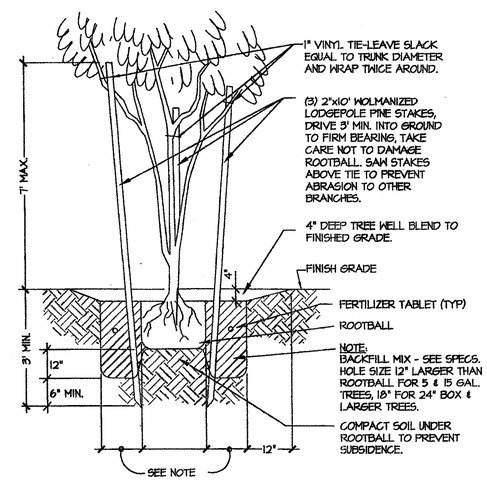
SEED MIX 1

P.L.S/Acre	Botanical Name	Common Name
	Aristida purpurea	Purple Three-Awn
1	Baileya multiradia	Desert Marigold
1.5	Bouteloua curtipendula	Side Oats Grama
2	Bouteloua gracilis	Blue Grama
2	Digitaria californica	Arizona Cottontop
1	Dyssodia pentachaeota	Dyssodia
1	Encelia farnosa	Brittle Brush
1	Erigonum fasciculatum v. polefolium	Flat-top Buckwheat
1	Eschscholtzia mexicana	Mexican Gold Poppy
3	Festuca arizonica	Arizona Fescue
2.5	Festuca ovina	Sheep Fescue
2.5	Linum lewisii	Blue Flax
1	Lupinus spaarsiflorus	Desert Lupine
2	Machaeranthera gracilis	Slender Goldenweed
0.5	Penstemon superbus	Supurb Penstemon
1.5	Phacelia campanularia	Desert Bluebells
1.5	Psalostrophe cooperi	Paperflower
1	Sporobolus cryptandrus	Sand Dropseed
2	Sporobolus wrightii	Scaton
2	Sphaeralcea ambigua	Desert Globemallow
1	Viguiera annua	Goldeneye
1		

SEED MIX 2 (SEED MIX 1 – ADD SHRUBS)

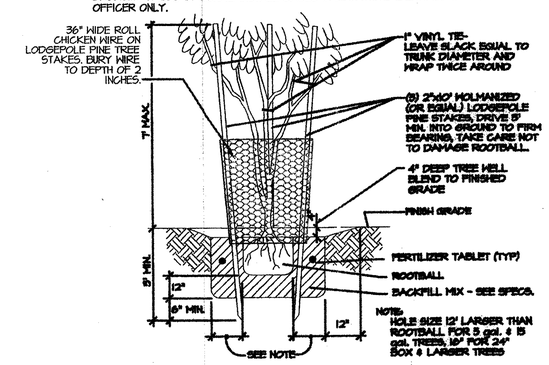
P.L.S./Acre	Botanical Name	Common Name
2	Atriplex canescens	Fourwing Saltbush
1.5	Atriplex lentiformis	Quail Brush
2	Celtis pallida	Desert Hackberry
1.5	Lycium spp.	Wolfberry
1.5	Zizyphus obtusifolia	Gray Thorn

TREE STAKING OPTIONAL. INSTALL STAKES ON SPECIFIED SIZES AND SPECIES ONLY.

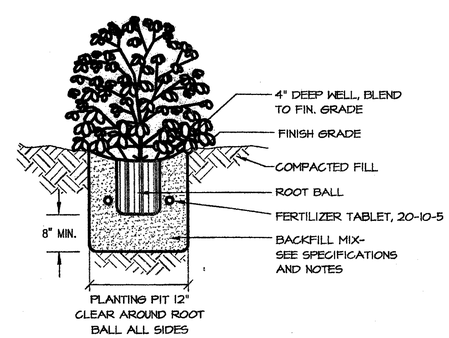


1 TREE PLANTING DETAIL
NTS

BROWSER CASES OPTIONAL. INSTALL CASES IN LOCATIONS IDENTIFIED BY CONTRACTING OFFICER ONLY.

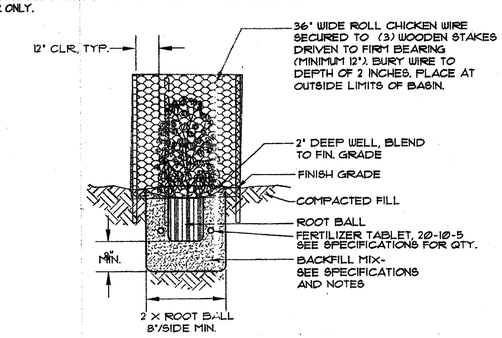


2 TREE PLANTING DETAIL W/BROWSER PROTECTION
N.T.S.



3 SHRUB PLANTING DETAIL
NTS

BROWSER CASES OPTIONAL. INSTALL CASES ON SPECIES IDENTIFIED BY CONTRACTING OFFICER ONLY.



4 SHRUB PLANTING W/BROWSER PROTECTION DETAIL
N.T.S.

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4574 North First Avenue
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Tucson, AZ 85718
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Fax 520.882.3005
Landscape Architecture • Planning
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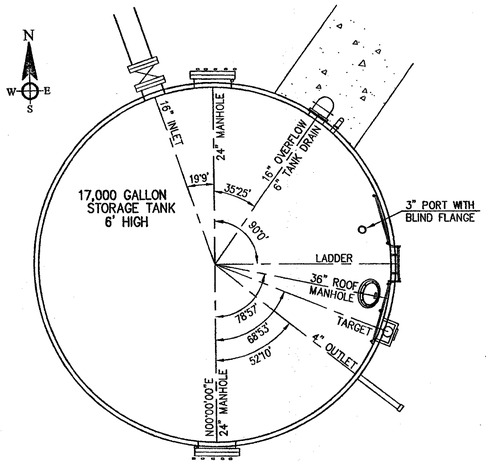
PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

DATE	
01-2005	DESIGNED SSB
03-2005	DRAWN SSB, SLB
03-2005	CHECKED SSB

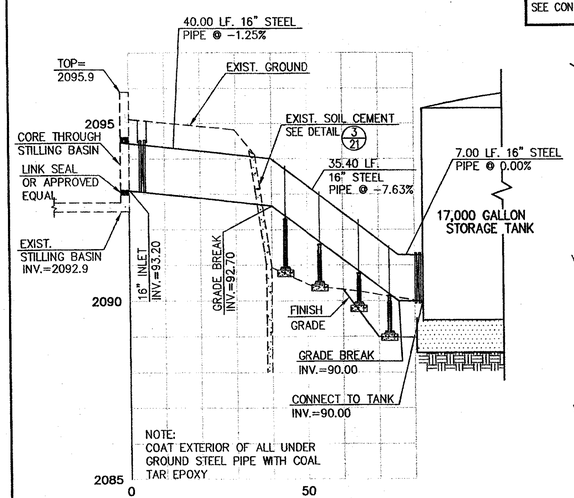
CORTARO MESQUITE BOSQUE
SEED MIX / PLANTING DETAILS
WO# 5FCM6G

DATE	

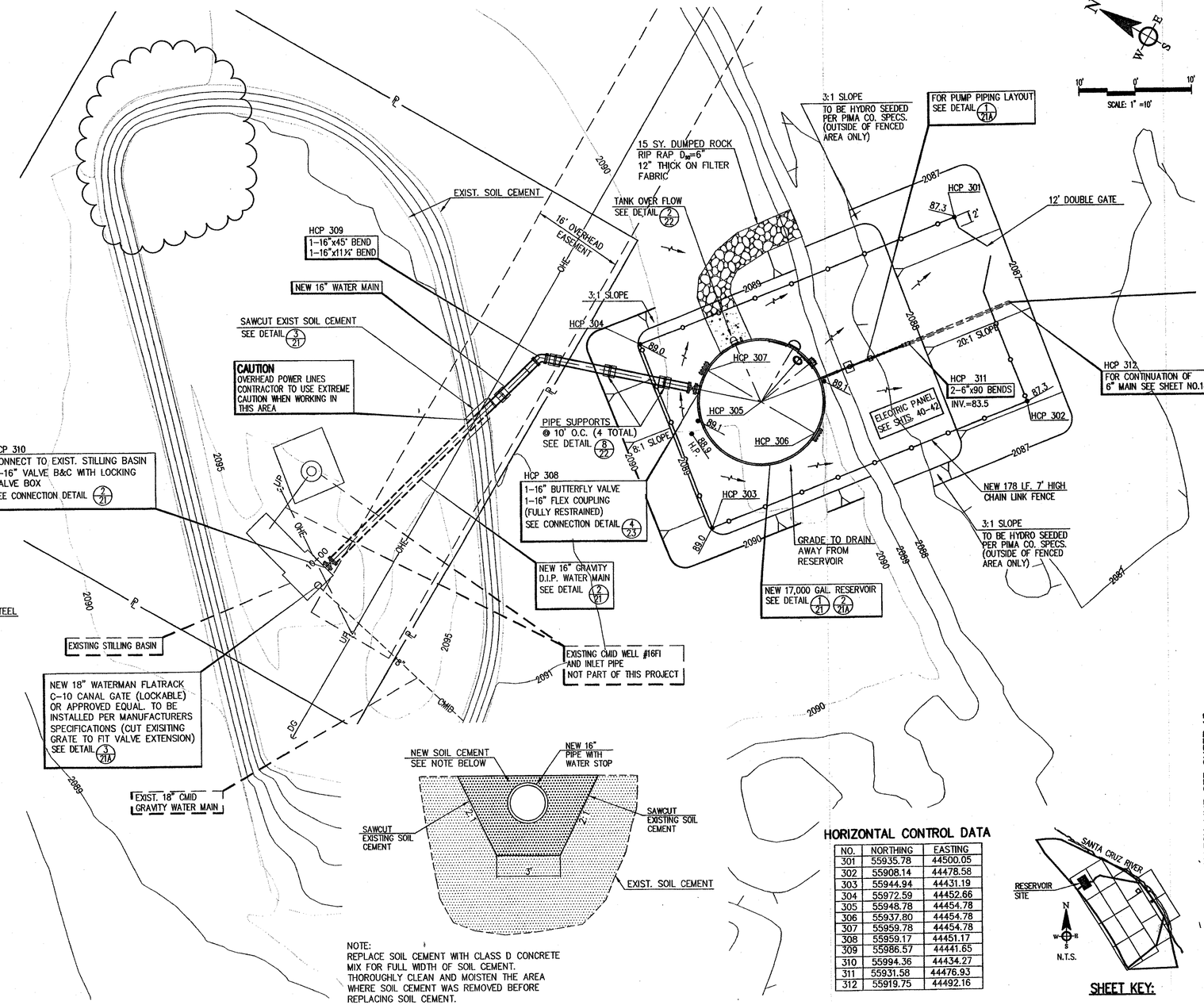
Registered Landscape Architect
CERTIFICATE NO. 22401
KAREN M. CESARE
Date Signed 3-23-05
ARIZONA U.S.A.



1/21 RESERVOIR LAYOUT DETAIL
N.T.S.



2/21 16" INLET CONNECTION DETAIL
N.T.S.



NOTE:
REPLACE SOIL CEMENT WITH CLASS D CONCRETE
MIX FOR FULL WIDTH OF SOIL CEMENT.
THOROUGHLY CLEAN AND MOISTEN THE AREA
WHERE SOIL CEMENT WAS REMOVED BEFORE
REPLACING SOIL CEMENT.

3/21 SOIL CEMENT REPLACEMENT DETAIL
N.T.S.

HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
301	55935.78	44500.05
302	55908.14	44478.58
303	55944.94	44431.19
304	55972.59	44452.66
305	55948.78	44454.78
306	55937.80	44454.78
307	55959.78	44454.78
308	55959.17	44451.17
309	55986.57	44441.65
310	55994.36	44434.27
311	55931.58	44476.93
312	55919.75	44492.16

SHEET KEY:

MATCH LINE SEE SHEET 15

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

CORTARO MESQUITE BISQUE
PUMP STATION LAYOUT PLAN
WITH SPCONS

		DATE
DESIGNED	R.S./R.A.	3-2005
DRAWN	G.G.F.	3-2005
CHECKED	R.S./R.A.	3-2005
PROJ ENGR	M.F.T.	3-2005

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

Registered Professional Engineer (Civil) CERTIFICATE NO. 22598 MARK F. TAYLOR Date Signed 3-9-05 Arizona U.S.A.

WestLand Resources Inc.
Engineering and Environmental Consultants
2343 E. Broadway Blvd. Suite 202
Tucson, Az 85719 (520) 206-9585

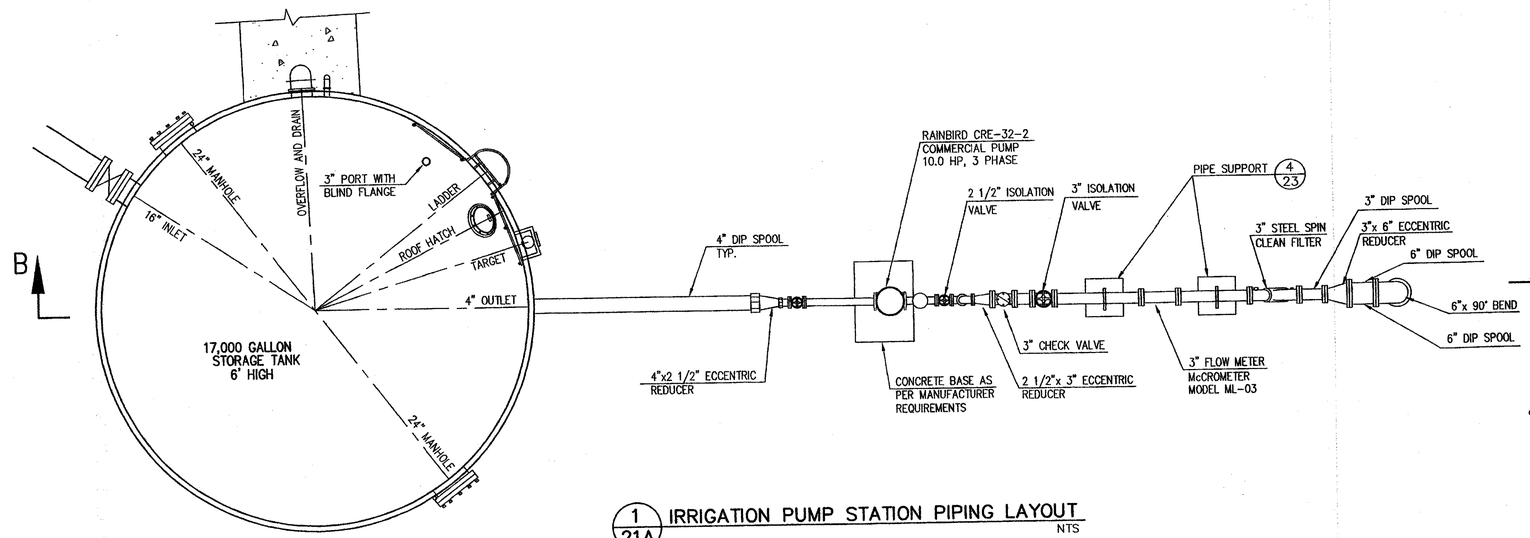
Two working days before you dig
CALL FOR THE BLUESTAKES
1-800-782-5348
1-800-STAKE IT
Blue Stake Center
CALL COLLECT

H:\PROJECTS\455.03\CORTARO-MESQUITE\CMB-20.DWG

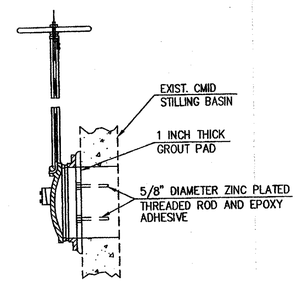
Scales Horiz. 1"= 10'
Vert. 1"=

SHEET 21 OF 42

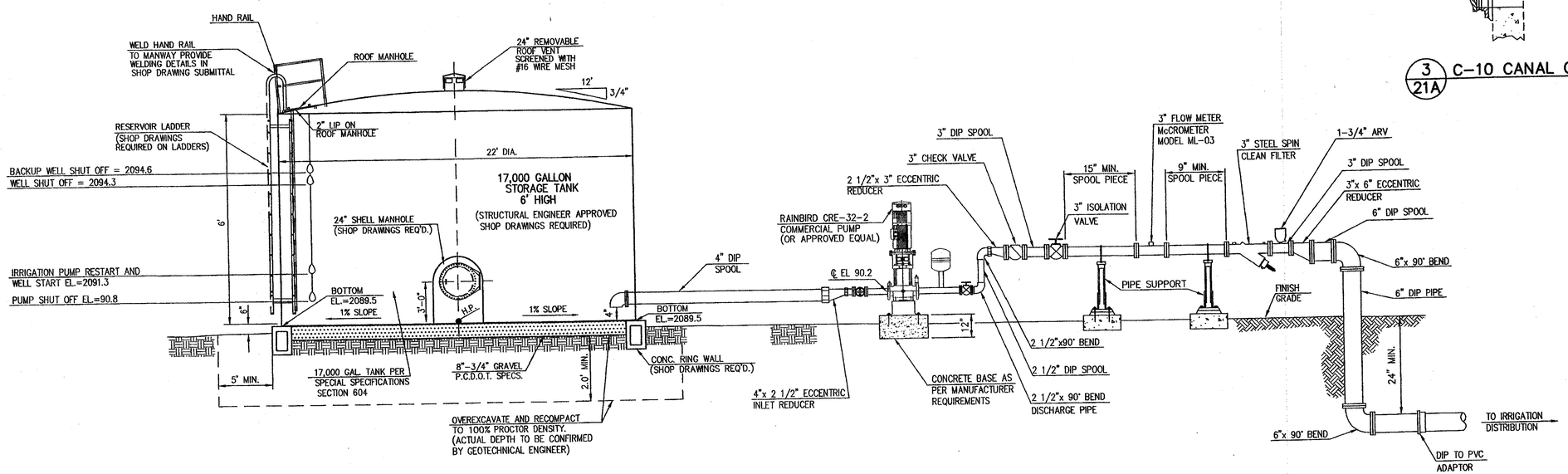
Page of



1/21A IRRIGATION PUMP STATION PIPING LAYOUT
NTS



3/21A C-10 CANAL GATE DETAIL
NTS



2/21A IRRIGATION PUMP STATION PIPING LAYOUT
SECTION B-B
NTS

WestLand Resources Inc.
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Tucson, Az 85719 (520) 206-9585

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1-800-STAKE IT
Blue Stake Center
CALL COLLECT

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PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

		DATE
DESIGNED	R.S./R.A.	3-2005
DRAWN	G.G.F.	3-2005
CHECKED	R.S./R.A.	3-2005
PROJ ENGR	M.F.T.	3-2005

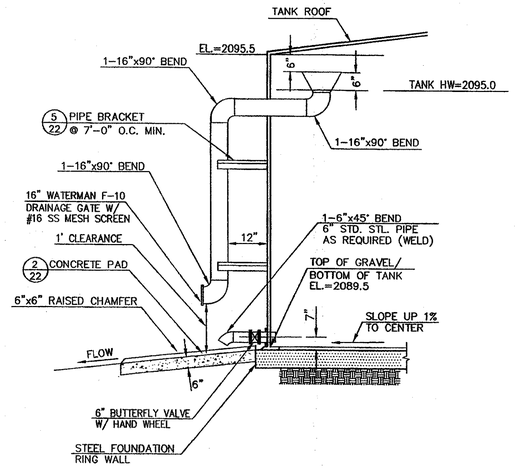
CORTARO MESQUITE BOSQUE
PUMP STATION DETAIL SHEET
W.O.# 5C080

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

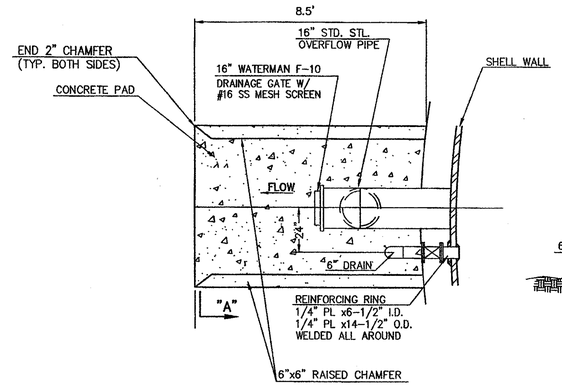
Scales Horiz. 1"= Vert. 1"=

SHEET 21A OF 42

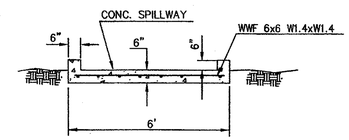
Page of



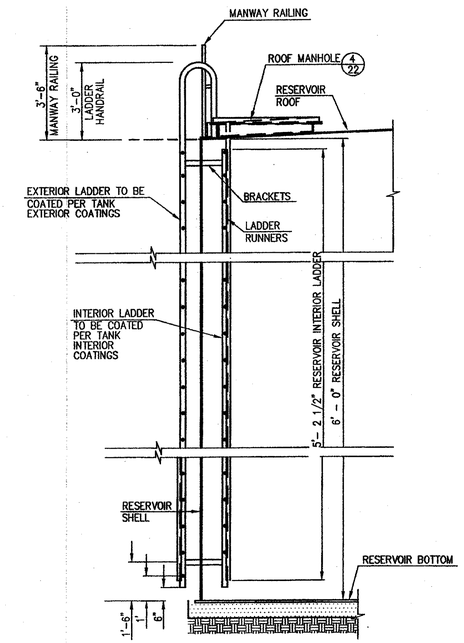
TANK OVERFLOW AND DRAIN SECTION
1/22 N.T.S.



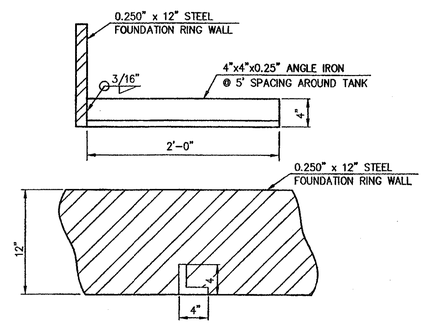
TANK OVERFLOW AND DRAIN PLAN
2/22 N.T.S.



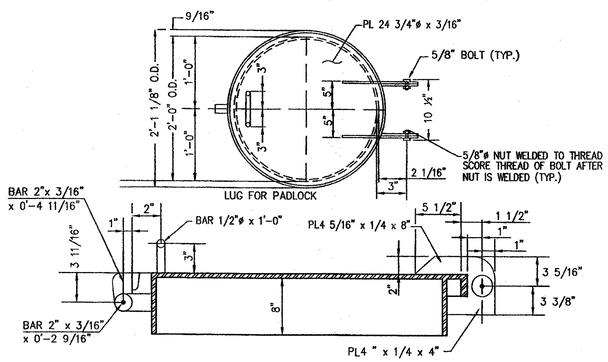
2A/22 SECTION "A"
N.T.S.



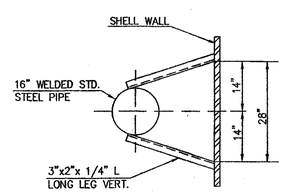
3/22 RESERVOIR LADDER SECTION
N.T.S.



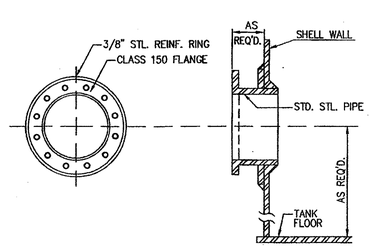
6/22 RING WALL HOLD-DOWN DETAIL
N.T.S.



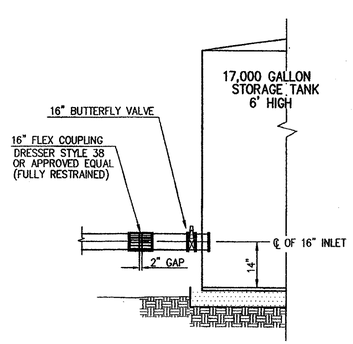
24" DIA. HINGED ROOF MANHOLE
4/22 N.T.S.



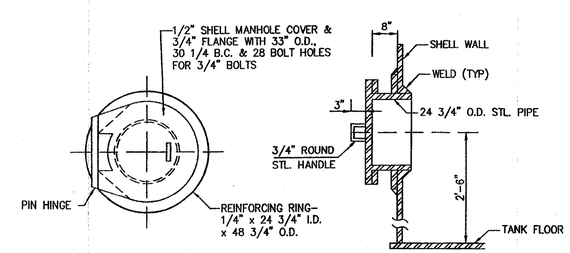
5/22 PIPE BRACKET
N.T.S.



7/22 PIPE INLET AND OUTLET
N.T.S.



8/22 16" INLET DETAIL
N.T.S.



9/22 24" SHELL MANHOLE
N.T.S.

WestLand Resources Inc.
Engineering and Environmental Consultants
2343 E. Broadway Blvd. Suite 202
Tucson, Az 85719 (520) 206-9585

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1-800-782-5348
1-800-STAKE IT
Blue Stake Center
CALL COLLECT

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

		DATE
DESIGNED	R.S./R.A.	3-2005
DRAWN	G.G.F.	3-2005
CHECKED	R.S./R.A.	3-2005
PROJ ENGR	M.F.T.	3-2005

CORTARO MESQUITE BOSQUE
PUMP STATION DETAIL SHEET
W.O.# 5F3H06

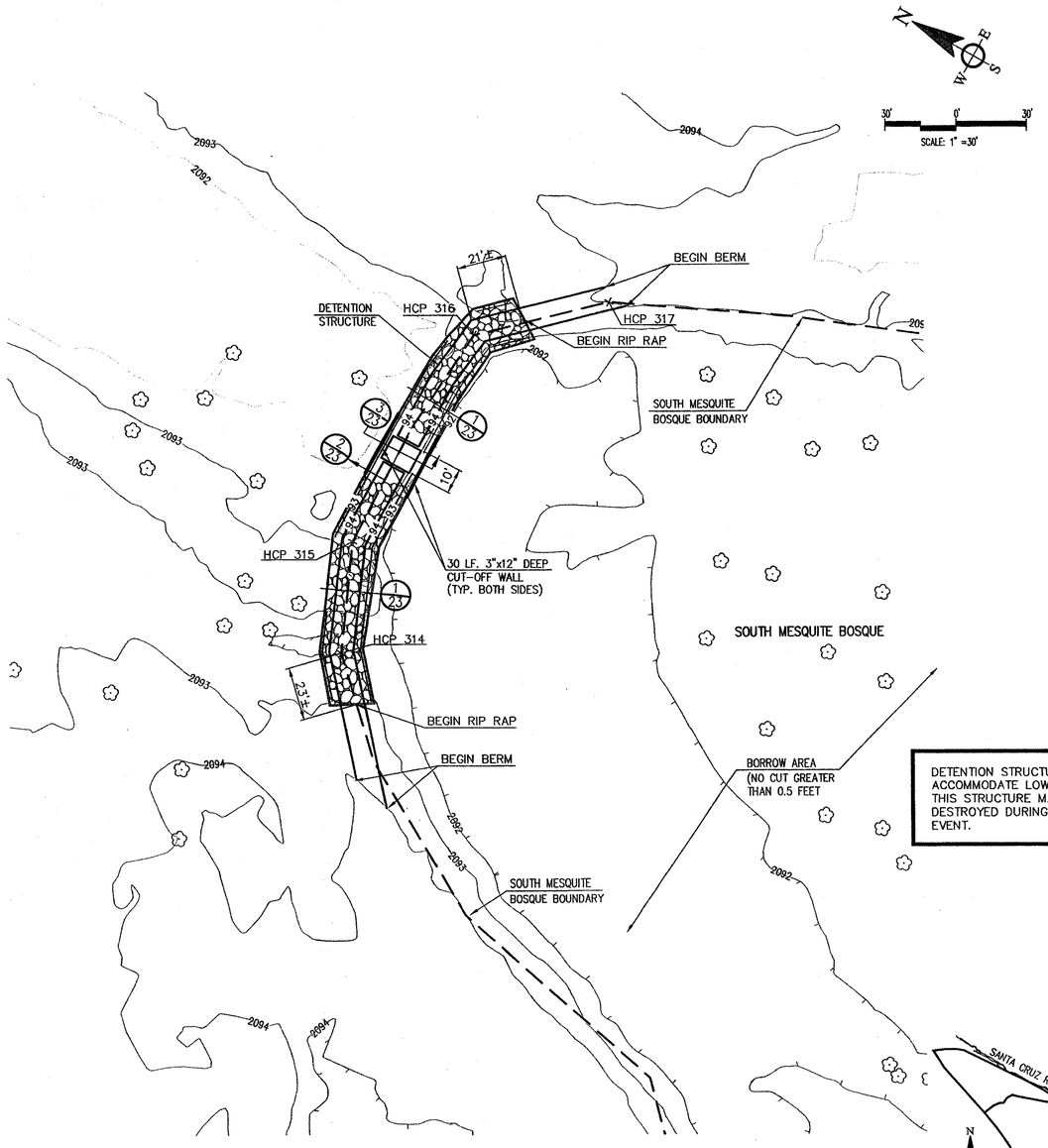
Registered Professional Engineer (Civil) CERTIFICATE NO. 22999 MARK F. TAYLOR Date Signed 3-9-05 ARIZONA U.S.A.

M:\PROJECTS\455.03\CORTARO-MESQUITE\CMB-21.DWG

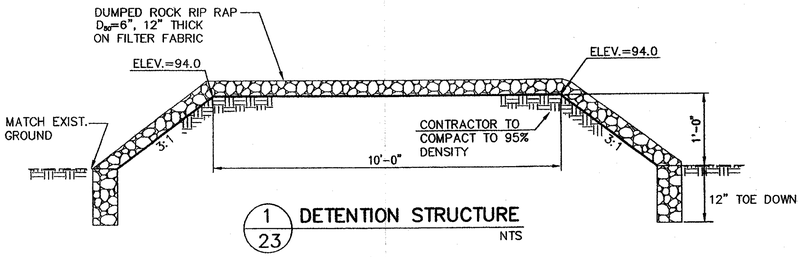
Scales Horiz. 1"= Vert. 1"=

SHEET 22 OF 42

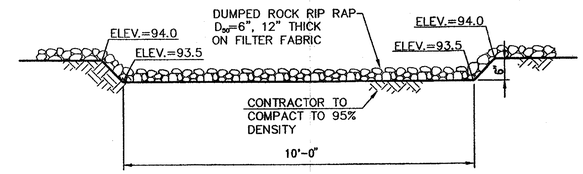
Page of



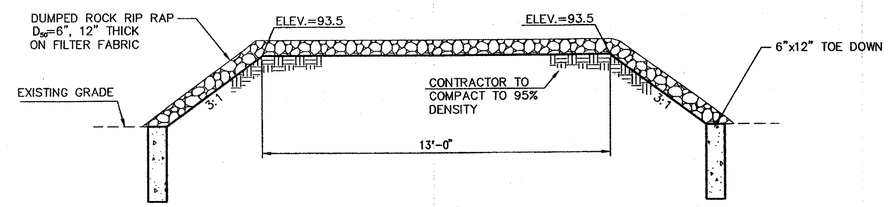
DETENTION STRUCTURE IS DESIGNED TO ACCOMMODATE LOW FLOWS ONLY THIS STRUCTURE MAY BE DAMAGED OR DESTROYED DURING A LARGE FLOOD EVENT.



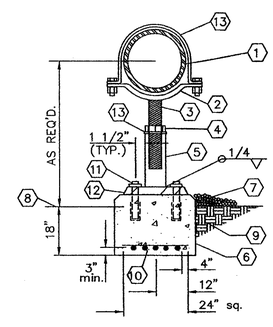
1/23 DETENTION STRUCTURE
NTS



2/23 DETENTION STRUCTURE SPILLWAY
NTS



3/23 DETENTION STRUCTURE SPILLWAY STRUCTURE
NTS



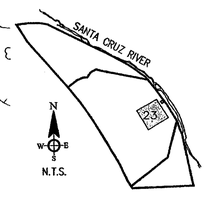
EQUIPMENT ⬡

1. STANDARD STEEL PIPE
2. SADDLE
3. 2" ALL THREAD
4. LOCK NUT
5. 3" RISER PIPE
6. 3000 PSI CONCRETE PER PC/COT STANDARD SPEC 1006.
7. 2" LAYER OF GRAVEL
8. FINAL GRADE
9. UNDISTURBED SOIL OR 95% MINIMUM COMPACTION.
10. 4 X 4–W2.9/W2.9 WWF OR 5–#3 RE–BARS @ 4" O.C., BOTH WAYS.
11. 6" x 3/4" DIA. ANCHOR BOLTS WITH EPOXY GROUT (4 EACH)
12. 10" SQ. x 3/4" THICK STEEL PLATE
13. STEEL YOKE WITH STEEL NUTS

NOTES:

1. "ANVIL INTERNATIONAL" ADJUSTABLE PIPE SADDLE SUPPORT, FIG 259 OR EQUAL.
2. "VERTICAL ADJUSTMENT" IS OBTAINED BY TURNING "LOCK NUT NIPPLE."
3. HORIZONTAL CONCRETE SURFACES SHALL BE FORMED WITH 1–1/2" CHAMFER.

4/23 PIPE SADDLE SUPPORT
N.T.S.



SHEET KEY:

WestLand Resources Inc.
Engineering and Environmental Consultants
2343 E. Broadway Blvd. Suite 202
Tucson, Az 85719 (520) 206-9585

Two working days before you dig CALL FOR THE BLUESTAKES
1-800-782-5348
1-800-STAKE IT
Blue Stake Center
CALL COLLECT

DETENTION STRUCTURE
HORIZONTAL CONTROL DATA

NO.	NORTHING	EASTING
314	55095.67	45807.43
315	55113.58	45851.99
316	55108.74	45953.69
317	55064.37	45992.76

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

CORTARO MESQUITE BOSQUE
DETENTION STRUCTURE
DETAIL SHEET
V.C.M. SC006

		DATE
DESIGNED	R.S./R.A.	3-2005
DRAWN	G.G.F.	3-2005
CHECKED	R.S./R.A.	3-2005
PROJ ENGR	M.F.T.	3-2005

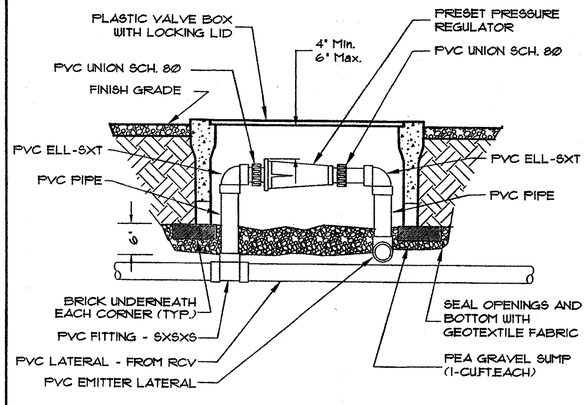
Registered Professional Engineer (Civil) CERTIFICATE NO. 22999 MARK F. TAYLOR Date Signed 3/9/05 ARIZONA U.S.A.

M:\PROJECTS\455.03\CORTARO-MESQUITE\CMB-23.DWG

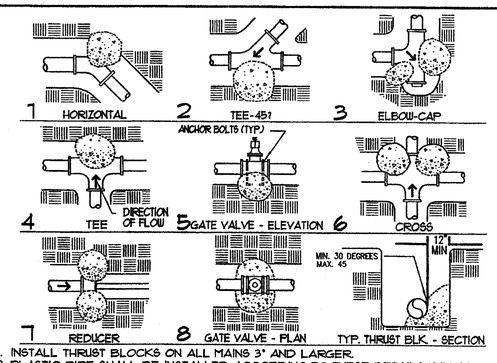
Scales Horiz. 1'= 30' Vert. 1'=

SHEET 23 OF 42

Page of

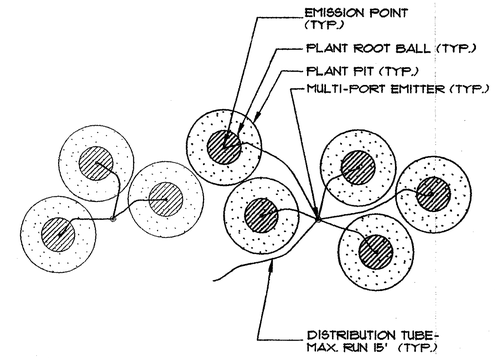


1 PRESSURE REGULATOR RISER
NTS



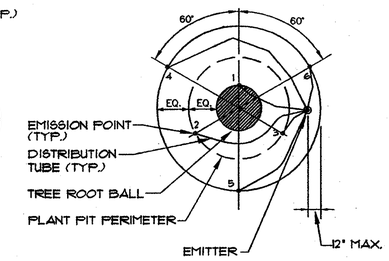
1. INSTALL THRUST BLOCKS ON ALL MAINS 3" AND LARGER.
2. PLASTIC PIPE SHALL BE INSTALLED ACCORDING TO THESE DETAILS UNLESS OTHERWISE NOTED OR DETAILED
3. THE PORTLAND CEMENT CONCRETE USED FOR THRUST BLOCKS SHALL BE MIN. 470-B-2000 CONC.
4. ALL ANCHOR RODS SHALL BE GALVANIZED STEEL MIN. 1/2" INCH IN DIAMETER.
5. SIZE OF THRUST BLOCK: 3" PIPE=3 CU. FT., 4" PIPE=4 CU. FT. CONC., 6" PIPE=6 CU. FT., 8" PIPE=8 CU. FT.
6. WRAP ALL EPOXY COATED FITTINGS WITH SIX MIL PLASTIC BEFORE POURING THRUST BLOCKS.
7. POOR SOIL CONDITIONS: USE THRUST BLOCKS FOR 3" PIPE AT SIZE SHOWN FOR 4" PIPE.
8. ALL THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED SOIL.

2 THRUST BLOCK INSTALLATION
NTS



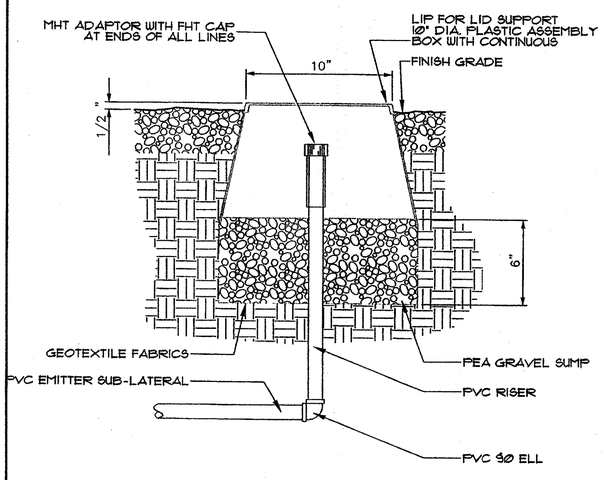
NOTES:
1. MORE THAN ONE SHRUB MAY BE WATERED FROM A SINGLE MULTI-PORT EMITTER.
2. MAXIMUM LENGTH OF ONE DISTRIBUTION TUBE SHALL BE 15'.
3. IF ONLY ONE DISTRIBUTION TUBE PER PLANT IS REQUIRED, PLACE EMISSION POINT ON TOP OF ROOT BALL OR UPHILL OF PLANT.
4. IF MORE THAN ONE DISTRIBUTION TUBE PER SHRUB IS REQUIRED, SPACE EMISSION POINTS EVENLY WITHIN PLANT PIT.
5. PLACE TUBING STAKE WITH BUG CAP AT EMISSION POINT (RAINBIRD MODEL TS-025, OR APPROVED EQUAL) - SEE MULTI-OUTLET EMITTER DETAIL.

3 EMITTER LOCATION -- SHRUBS
NTS

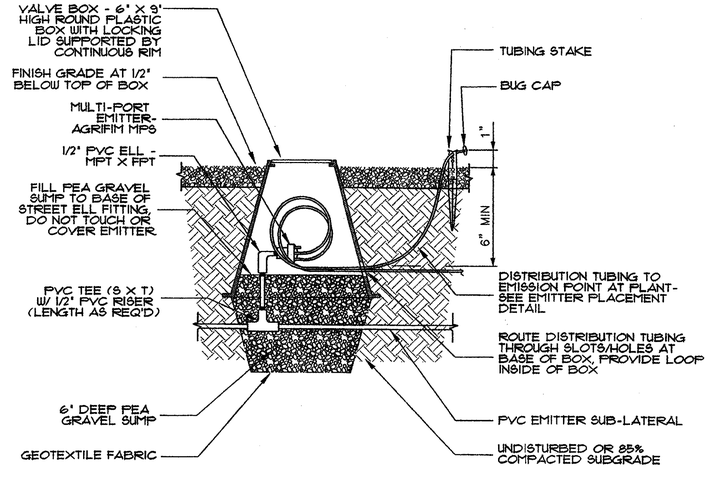


NOTES:
1. MAXIMUM LENGTH OF ONE DISTRIBUTION TUBE SHALL BE 15'.
2. EMISSION POINTS ARE NUMBERED IN ORDER OF PLACEMENT (1-6).
3. IF ONLY ONE EMMITER- PLACE UPHILL OF TREE

4 EMITTER LOCATION -- TREES
NTS

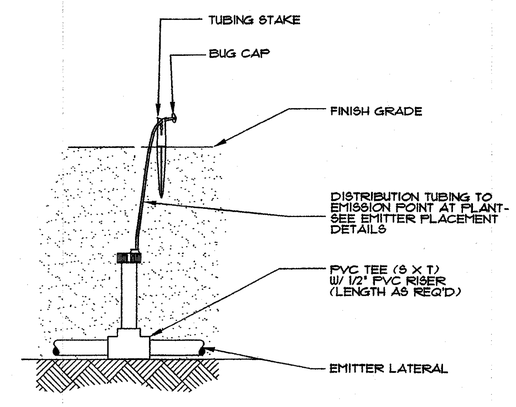


5 LATERAL END CAP
NTS



NOTE: REFER TO SPECIFICATIONS FOR PIPING MATERIALS AND REQUIREMENTS
REFER TO PLANT SCHEDULE FOR # OF OUTLETS & GPH PER PLANT

6 MULTI-OUTLET EMITTER ON PVC LATERAL
NTS



7 SINGLE OUTLET EMITTER ON PVC LATERAL
NTS

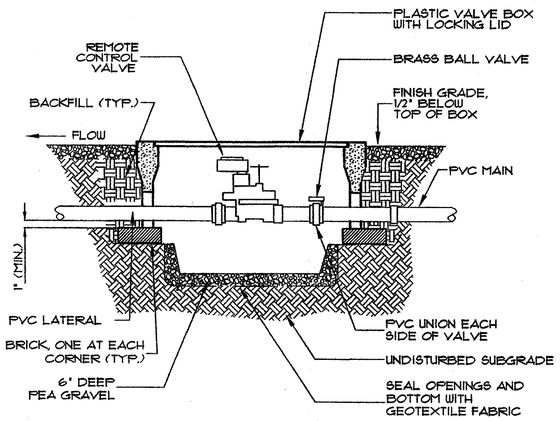
PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO	REVISION DESCRIPTION	DIV/SECT ENGR	DATE

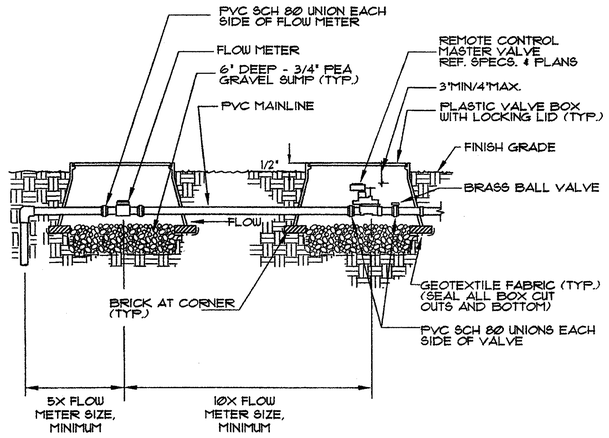
COST ARO MESQUITE BOSQUE IRRIGATION DETAILS

W.O.# SPCYB6G

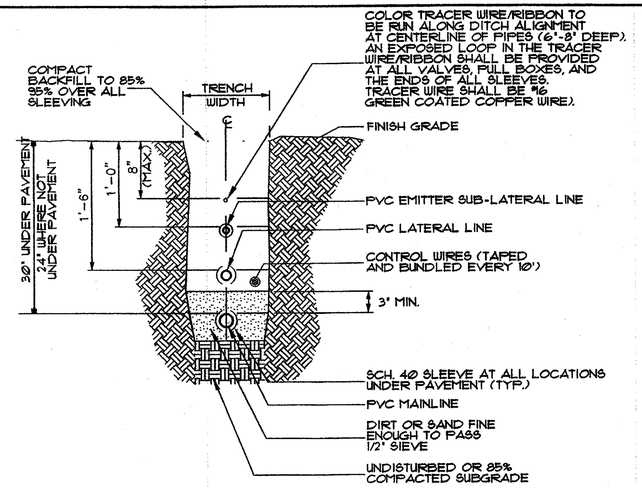
REGISTERED LANDSCAPE ARCHITECT
JEFFREY S. TOWE
37598
KEVIN C. EDDY
Date 8/28/14
AZ, U.S.A.



8 REMOTE CONTROL VALVE -- SPRAY
NTS



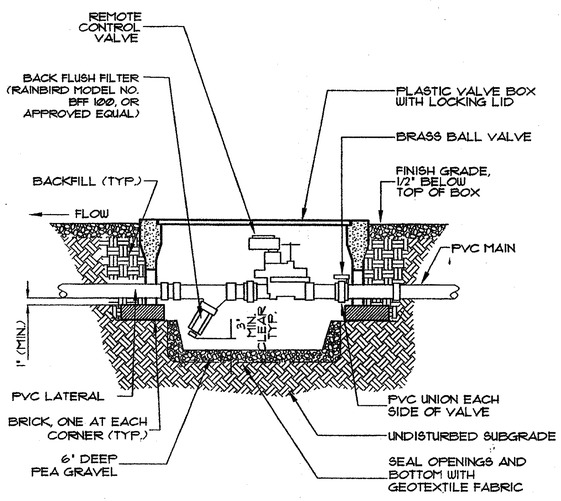
9 MASTER VALVE & FLOW METER
NTS



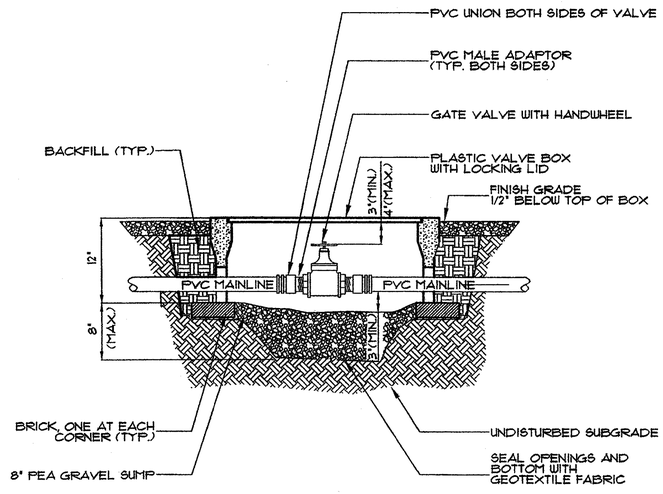
NOTES:

1. ALL PIPE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. NO PIPE OR WIRE SHALL BE LOCATED UNDER PAVING UNLESS IT IS SLEEVED.

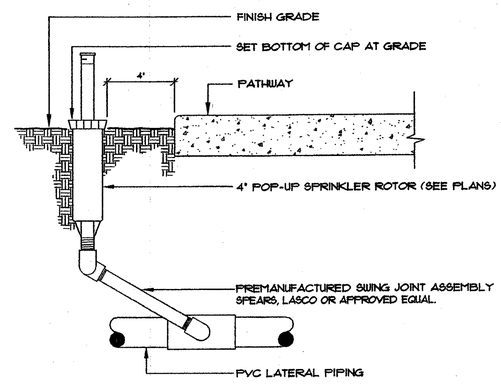
9 IRRIGATION TRENCHING
NTS



10 REMOTE CONTROL VALVE -- DRIP
NTS



11 GATE (ISOLATION) VALVE
NTS



12 SPRINKLER ROTOR
NTS

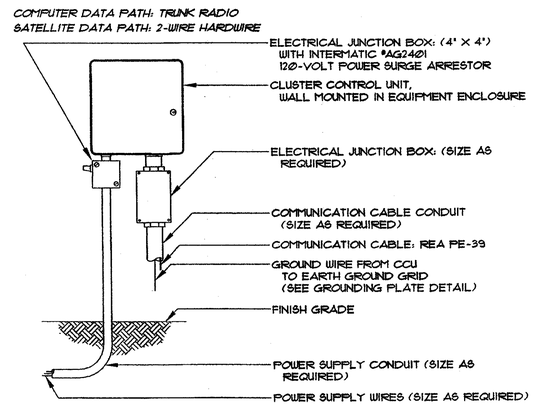
PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO	REVISION DESCRIPTION	DIV/SECT ENGR	DATE

		DATE
DESIGNED	KCE	2-28-2005
DRAWN	KCE, KS	2-28-2005
CHECKED	RWS	2-28-2005

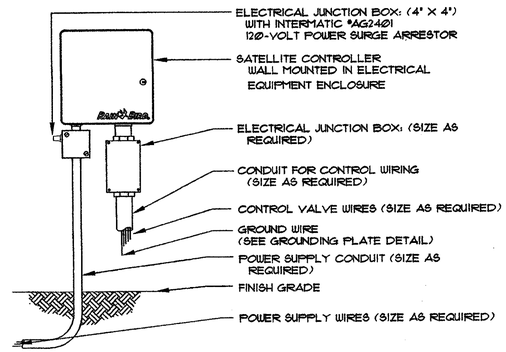
CORTARO VESQUITE BOOGIE
IRRIGATION DETAILS
10.01 SPCTRG

REGISTERED ARCHITECT
ROBERT WESTLAKE EDDY
STATE OF ARIZONA
37598
CERTIFICATE NO.
DATE 2/28/05

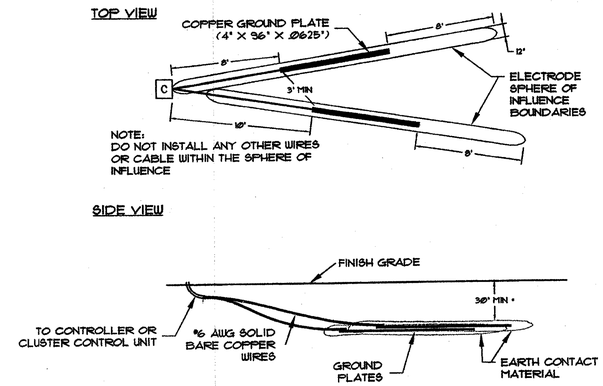


NOTE:
INSTALL RAINBIRD MSP-1 SURGE ARRESTOR IN A VALVE BOX IN THE GROUND OR IN SATELLITE CABINET. (SEE SURGE ARRESTOR DETAIL)

13 CLUSTER CONTROL UNIT
NTS



14 SATELLITE CONTROLLER
NTS



15 GROUNDING PLATE LAYOUT
NTS

IRRIGATION EQUIPMENT SCHEDULE

SYM.	DESCRIPTION	SIZE	MANUFACTURER	MODEL	NOTES
A	CLUSTER CONTROL UNIT WITH PULSE DECODER	6 STATION N/A	RAINBIRD RAINBIRD	CCU-6-W DECV-PUL	TO BE INSTALLED IN NEW ELECTRICAL ENCLOSURE CABINET, SEE ELECTRIACAL SHEETS.
B C	FIELD SATELLITE CONTROLLER	32 STATION	RAINBIRD	ESP-32SAT-2W	TO BE INSTALLED IN NEW ELECTRICAL ENCLOSURE CABINET, SEE ELECTRIACAL SHEETS.
⋈	GATE VALVE	2" AND LARGER	NIBCO	T-113I	SIZE VALVE PER INCOMING LINE
	MASTER VALVE AND FLOW METER ASSEMBLY WITH PULSE TRANSMITTER	2" 1 1/2" N/A	RAINBIRD RAINBIRD RAINBIRD	200GB F5150P PT1502	
NOT SHOWN	MASTER FILTER	3"	API	4E3-200F	SEE SHEET 21B FOR MASTER FILTER LOCATION. SEE SPECIAL PROVISIONS.
	MAINLINE	AS NOTED ON PLANS			2" AND UNDER- SCH. 40 PVC GREATER THAN 2" - CL. 200 PVC GASKET POCKET PIPE
	EMITTER HEADER	2"		SCH. 40 PVC	
	SPRAY LATERAL	AS NOTED ON PLANS		CL. 200 PVC	
	EMITTER LATERAL	3/4"		CL. 200 PVC	
	SLEEVE	2" OR AS NOTED ON PLANS		SCH. 40 PVC	INSTALL UNDER PAVING
	EMITTER LATERAL FLUSH END CAP ASSEMBLY	N/A		N/A	THREADED FITTING WITH HOSE THREAD CAP
	REMOTE CONTROL VALVE (DRIP) AND FILTER ASSEMBLY	1" 1"	RAINBIRD RAINBIRD	100PESB BFF 100	
	REMOTE CONTROL VALVE (SPRAY)	2"	RAINBIRD	200PESB	
	PRESSURE REGULATOR	N/A	SENNINGER	PR-40HF	
NOT SHOWN	MULTI-OUTLET EMITTERS	N/A	RAINBIRD	XBT-10-6 XBT-20-6	
NOT SHOWN	SINGLE OUTLET EMITTERS	N/A	RAINBIRD	XBT-10PC XBT-20PC	
	ADJUSTABLE SPRAY ROTOR	N/A	RAINBIRD	7005-10	#10 NOZZLE @ 50psi 9.3 GPM EACH

EMITTER SCHEDULE

BOTANICAL NAME		NUMBER OF EMITTERS	OUTLET GPH	TOTAL GPM TO BEGIN	NOTES
Acacia constricta		1	1	1	
Acacia greggii		1	1	1	
Atriplex lentiformis		1	1	1	
Baccharis salicifolia		1	1	1	
Celtis pallida		1	2	2	
Celtis reticulata	(T)	2	2	4	
Cercidium floridum	(T)	2	2	4	
Cercidium microphyllum	(T)	2	2	4	
Chilopsis linearis	(T)	2	2	4	
Fraxinus velutina	(T)	4	2	8	
Juglans nigra	(T)	5	2	10	2 MULTI-OUTLET EMITTERS
Populus fremontii	(T)	5	2	10	2 MULTI-OUTLET EMITTERS
Prosopis pubescens	(T)	2	2	4	
Prosopis velutina	(T)	2	2	4	
Salix exigua		2	2	4	
Salix gooddingii	(T)	3	2	6	
Sambucus mexicana		1	2	2	
Zizyphus obtusifolia		1	1	1	

NOTE: (1) MULTI-OUTLET EMITTER PER TREE (T), UNLESS OTHERWISE NOTED.

GENERAL NOTES:
1. THIS PROJECT IS IRRIGATED WITH WATER FROM THE SHOWN CMID WELL. CONTRACTOR SHALL COORDINATE WORK AT THE EXISTING WELL WITH CMID.
2. THIS IRRIGATION SYSTEM IS DESIGNED TO OPERATE AT NO GREATER THAN 120 GPM AT A TIME. SCHEDULING OF VALVE SEQUENCING SHOULD OPERATE SPRAY AND DRIP VALVES AT DIFFERENT TIMES.
3. IRRIGATION PLANS ARE SCHEMATIC. COTRACTOR IS RESPONSIBLE FOR ENSURING ADEQUATE IRRIGATION COVERAGE TO ALL PLANTS AND SEEDED AREAS.

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO	REVISION DESCRIPTION	DIV/SECT ENGR.	DATE

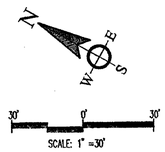
		DATE
DESIGNED	KCE	2-28-2005
DRAWN	KCE, KS	2-28-2005
CHECKED	RJJS	2-28-2005

CORTARO MESQUITE BOSQUE
IRRIGATION DETAILS AND SCHEDULES

M.O. #50786

REGISTERED LANDSCAPE ARCHITECT
STEVEN C. EDDY
37598
STATE OF ARIZONA
02-28-05

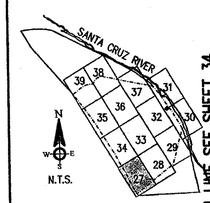
CORTARO BOSQUE
16-04-W-132281-0403



IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
	GATE VALVE
	MASTER VALVE
F	MASTER FILTER
	MAINLINE
	LATERAL
	SPRAY LATERAL
	EMITTER SUB-LATERAL
	SLEEVE
	EMITTER LATERAL FLUSH END CAP ASSEMBLY
	DRIP VALVE AND FILTER ASSEMBLY
	SPRAY VALVE
R	PRESSURE REGULATOR
	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE



SHEET KEY:

Arizona Blue Stake
1-800-STAKE-IT (outside Maricopa County)
263-1100 (inside Maricopa County)
Call Two Working Days Before You Dig

WestLand Resources Inc.
Engineering and Environmental Consultants
2343 E. Broadway Blvd. Suite 202
Tucson, Az 85719 (520) 206-1385

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

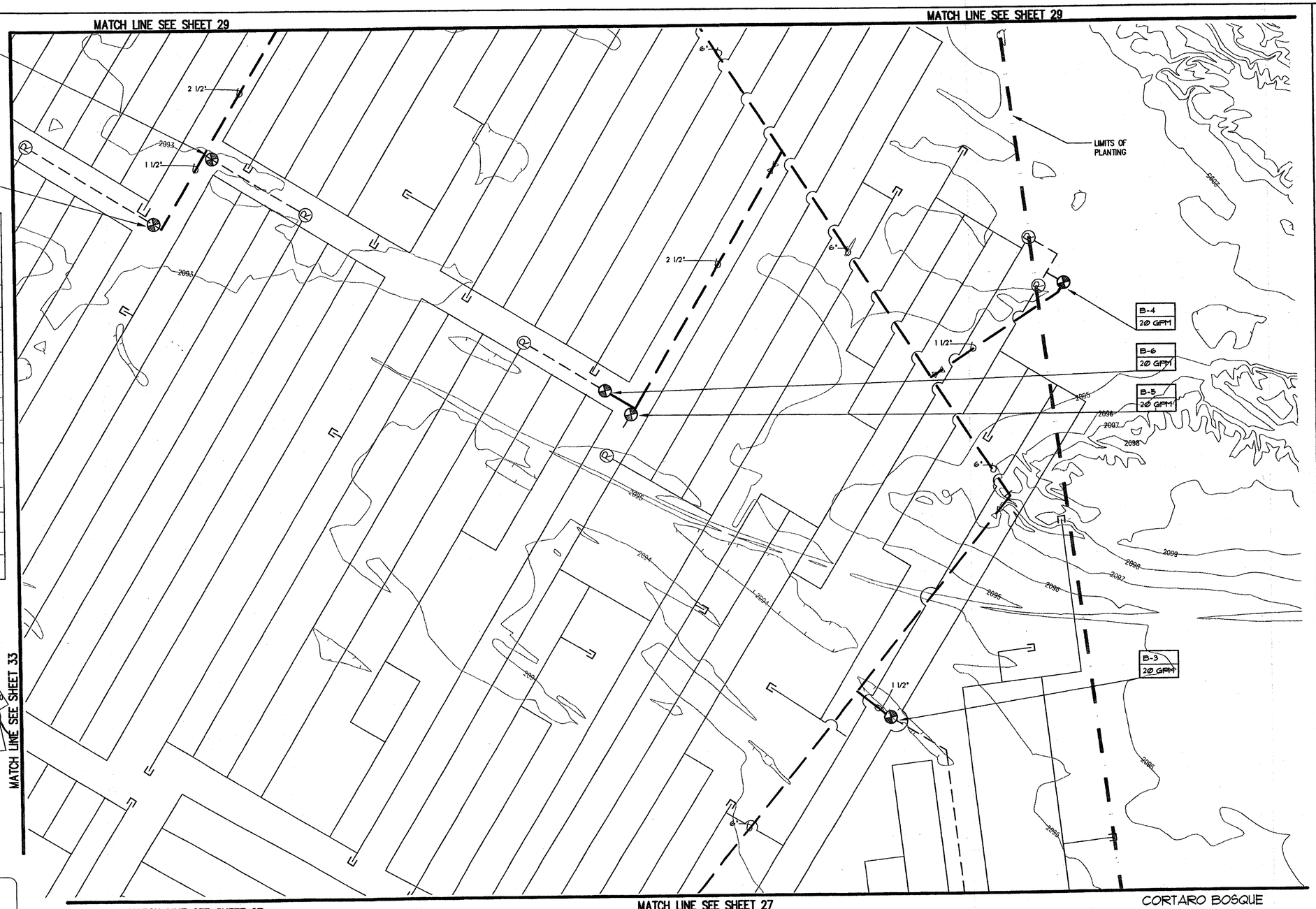
NO	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

CORTARO MESQUITE BOSQUE
IRRIGATION PLANS
W.O.# 15-PC-P63

REGISTERED LANDSCAPE ARCHITECT
37586
KIMBERLY
EDDY
ARIZONA U.S.A.
04-30-16

Scales Horiz. 1" = 30'

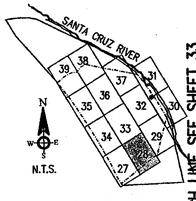
SHEET 27 OF 42



IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
	GATE VALVE
	MASTER VALVE
F	MASTER FILTER
	MAINLINE
	LATERAL
	SPRAY LATERAL
	EMITTER SUB-LATERAL
	SLEEVE
	EMITTER LATERAL FLUSH END CAP ASSEMBLY
	DRIP VALVE AND FILTER ASSEMBLY
	SPRAY VALVE
	PRESSURE REGULATOR
	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE



SHEET KEY:

Arizona Blue Stake
1-800-STAKE-IT (outside Maricopa County)
263-1100 (inside Maricopa County)
Call Two Working Days Before You Dig

WestLand Resources Inc.
Engineering and Environmental Consultants
2343 E. Broadway Blvd. Suite 202
Tucson, Az 85719 (520) 206-9585

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO	REVISION DESCRIPTION	DIV/SECT ENGR.	DATE

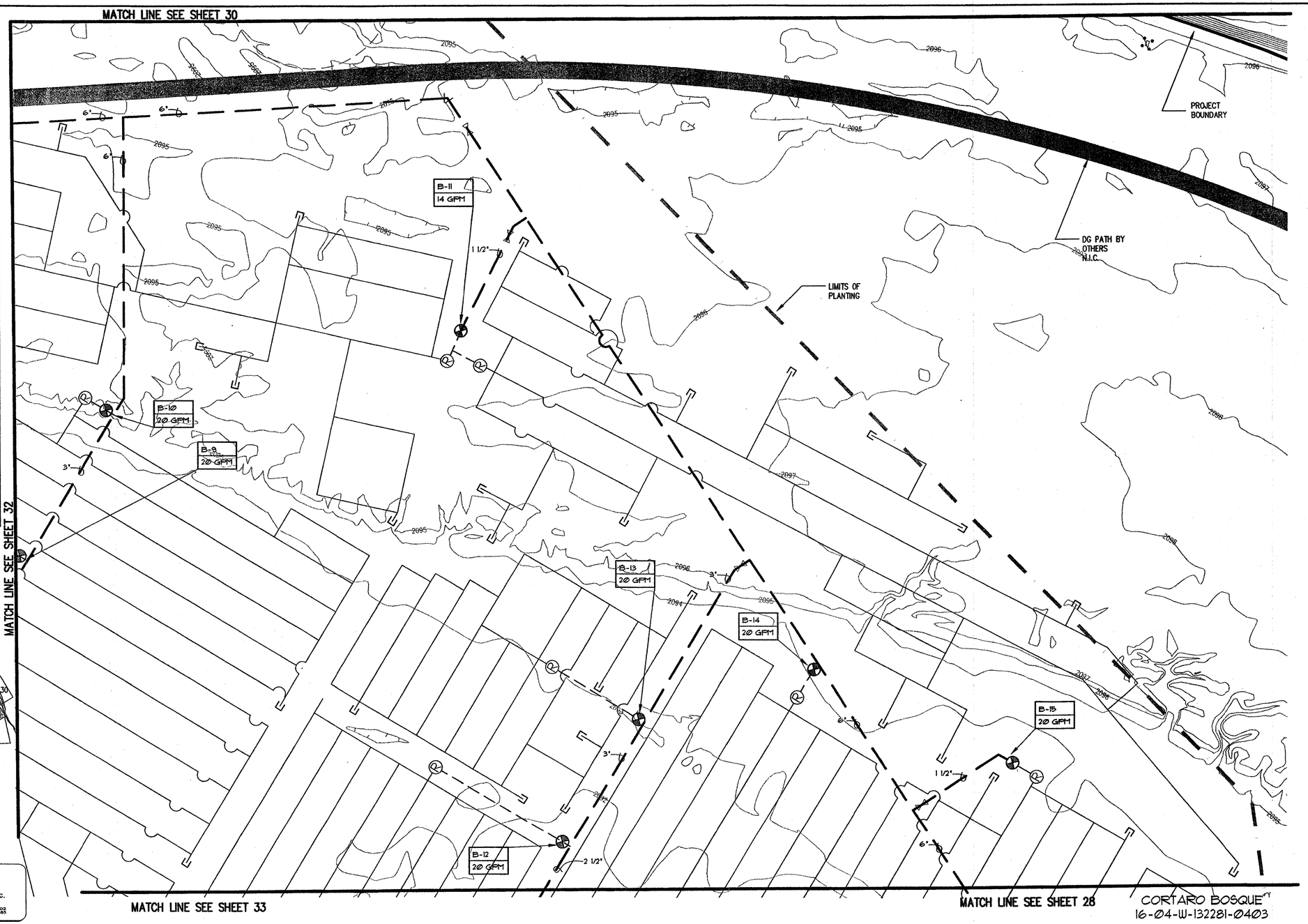
CORTARO MESQUITE BOSQUE
IRRIGATION PLANS
NO. SPECIES

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 17596
KEVIN C. EDDY
Date Signed 10-30-06
AZ, U.S.A.

CORTARO BOSQUE
16-04-W-132281-0403

Scales Horiz. 1"= 30'

SHEET 28 OF 42



SCALE: 1" =30'

IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
	GATE VALVE
	MASTER VALVE
F	MASTER FILTER
	MAINLINE
	LATERAL
	SPRAY LATERAL
	EMITTER SUB-LATERAL
	SLEEVE
	EMITTER LATERAL FLUSH END CAP ASSEMBLY
	DRIP VALVE AND FILTER ASSEMBLY
	SPRAY VALVE
	PRESSURE REGULATOR
	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE

SANTA CRUZ RIVER

N.T.S.

SHEET KEY:

Arizona Blue Stake
1-800-STAKE-IT (outside Maricopa County)
263-1100 (inside Maricopa County)
Call Two Working Days Before You Dig

WestLand Resources Inc.
Engineering and Environmental Consultants
2343 E. Broadway Blvd. Suite 202
Tucson, AZ 85719 (520) 206-9585

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO	REVISION DESCRIPTION	DIV/SECT ENGR.	DATE

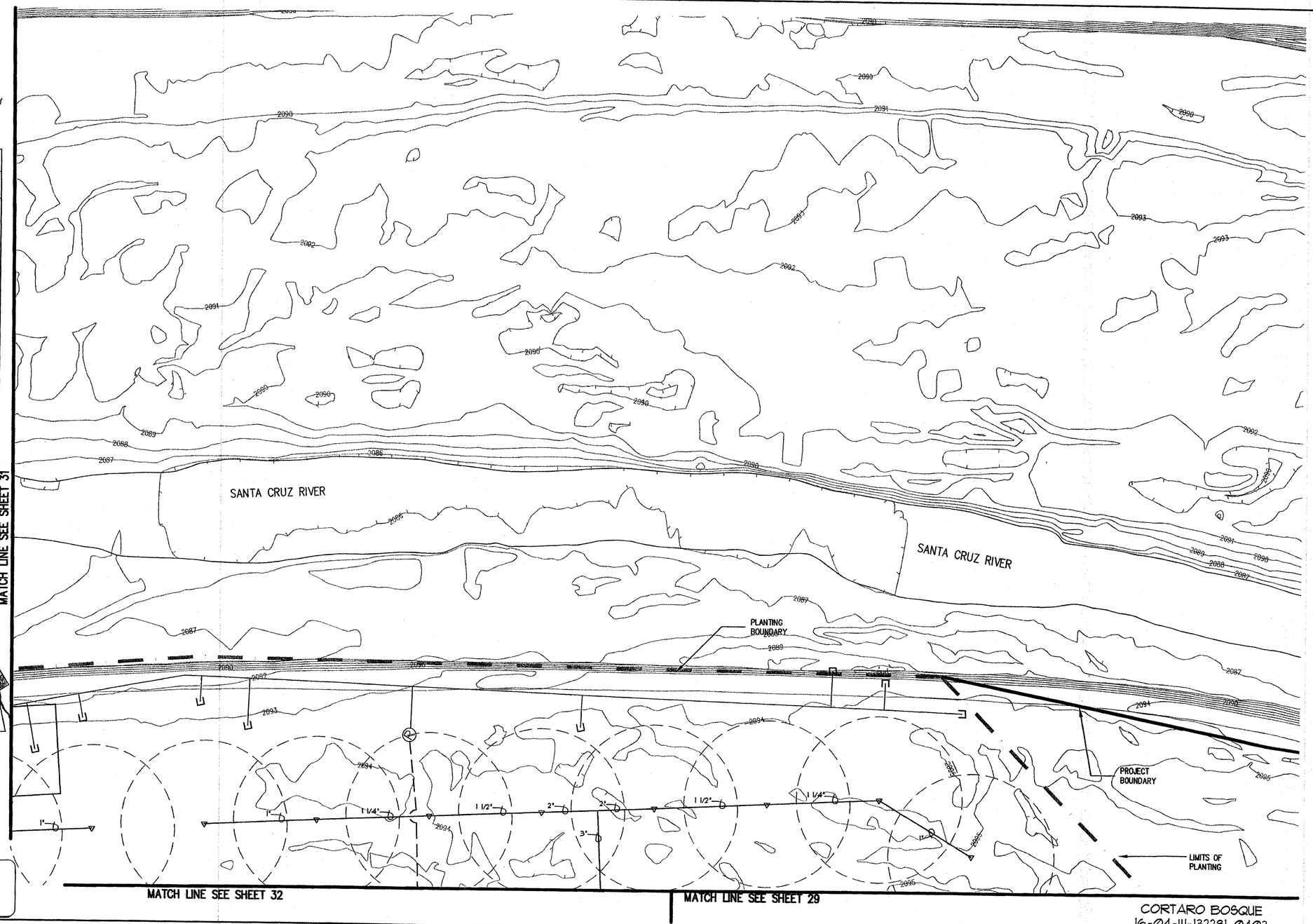
CORTARO MESQUITE BOSQUE
IRRIGATION PLANS

M.O.: 5FC7563

REGISTERED LANDSCAPE ARCHITECT
STEVE ROSS
37598
KEVIN C. EDDY
DATE SIGNED 4-15-03
AZ U.S.A.

Scales Horiz. 1'= 30'

SHEET 29 OF 42



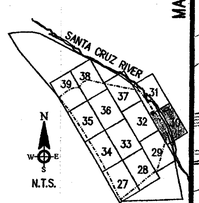
N
W E S

30' 0' 30'
SCALE 1" =30'

IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
⋈	GATE VALVE
⊗	MASTER VALVE
Ⓕ	MASTER FILTER
	MAINLINE
	LATERAL
	SPRAY LATERAL
	EMITTER SUB-LATERAL
	SLEEVE
	EMITTER LATERAL FLUSH END CAP ASSEMBLY
	DRIP VALVE AND FILTER ASSEMBLY
⊠	SPRAY VALVE
	PRESSURE REGULATOR
◁	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE



SHEET KEY:

Arizona Blue Stake
1-800-STAKE-IT
(outside Maricopa County)
263-1100
(inside Maricopa County)
Call Two Working Days Before You Dig

WestLand Resources Inc.
Engineering and Environmental Consultants
3343 E. Broadway Blvd., Suite 202
Tucson, Az. 85716 (520) 326-5325

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

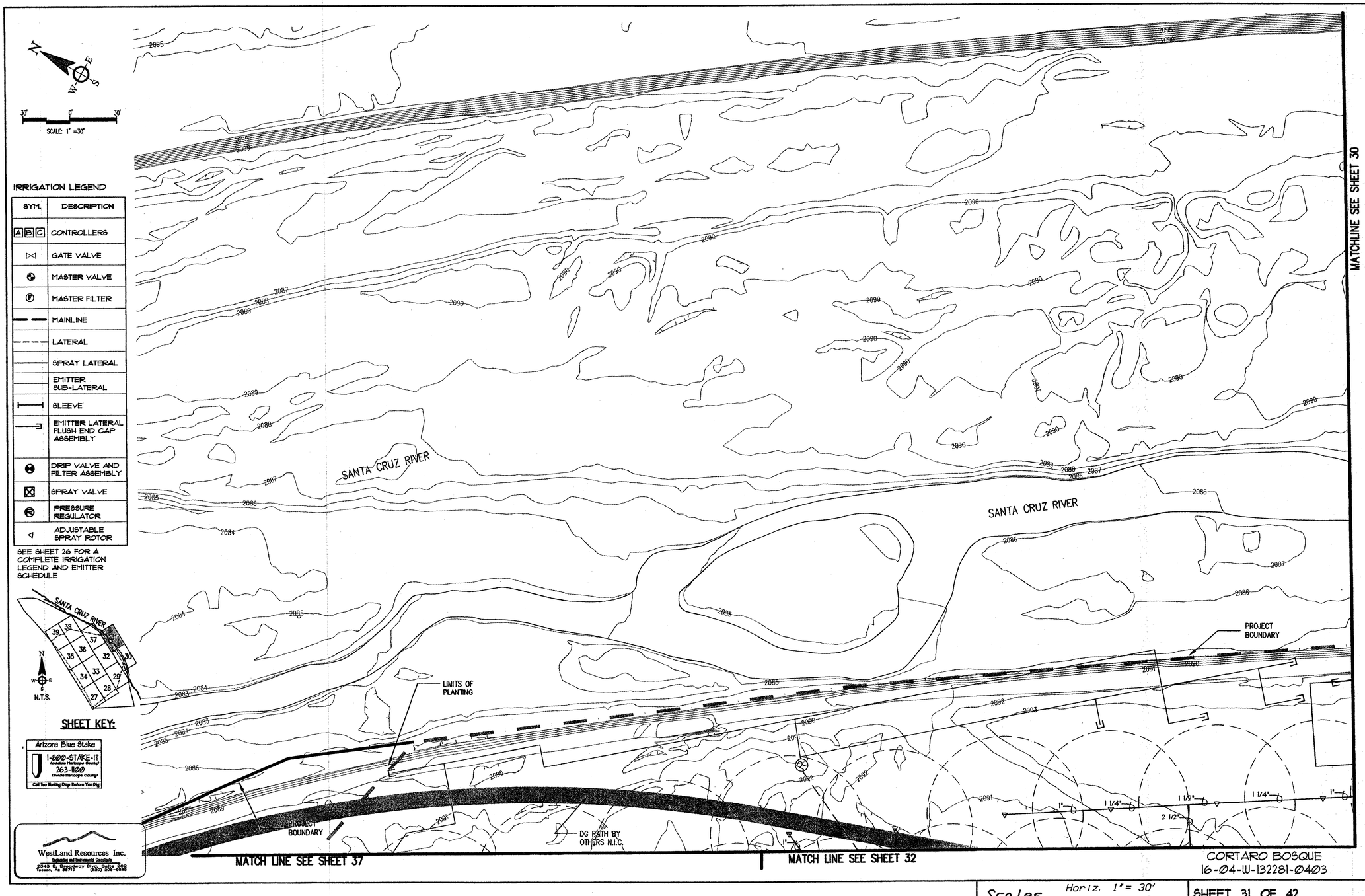
CORTARO VESQUITE BOSQUE
IRRIGATION PLANS
16.01' SPCPE&G

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 27586
STEVEN C. EDDY
Date Signed 4-18-07
AZ, U.S.A.

CORTARO BOSQUE
16-04-W-132281-0403

Scales Horiz. 1" = 30'

SHEET 30 OF 42



IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
	GATE VALVE
	MASTER VALVE
F	MASTER FILTER
	MAINLINE
	LATERAL
	SPRAY LATERAL
	EMITTER SUB-LATERAL
	SLEEVE
	EMITTER LATERAL FLUSH END CAP ASSEMBLY
	DRIP VALVE AND FILTER ASSEMBLY
	SPRAY VALVE
	PRESSURE REGULATOR
	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE

SHEET KEY:

Arizona Blue Stake
1-800-STAKE-IT
(Outside Maricopa County)
263-1100
(Inside Maricopa County)
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Engineering and Environmental Consultants
2343 E. Broadway Blvd., Suite 202
Tucson, AZ 85719 (520) 206-9585

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO	REVISION DESCRIPTION	DIV/SECT ENGR	DATE

CORTARO BOSQUE LANDSCAPE PLANS

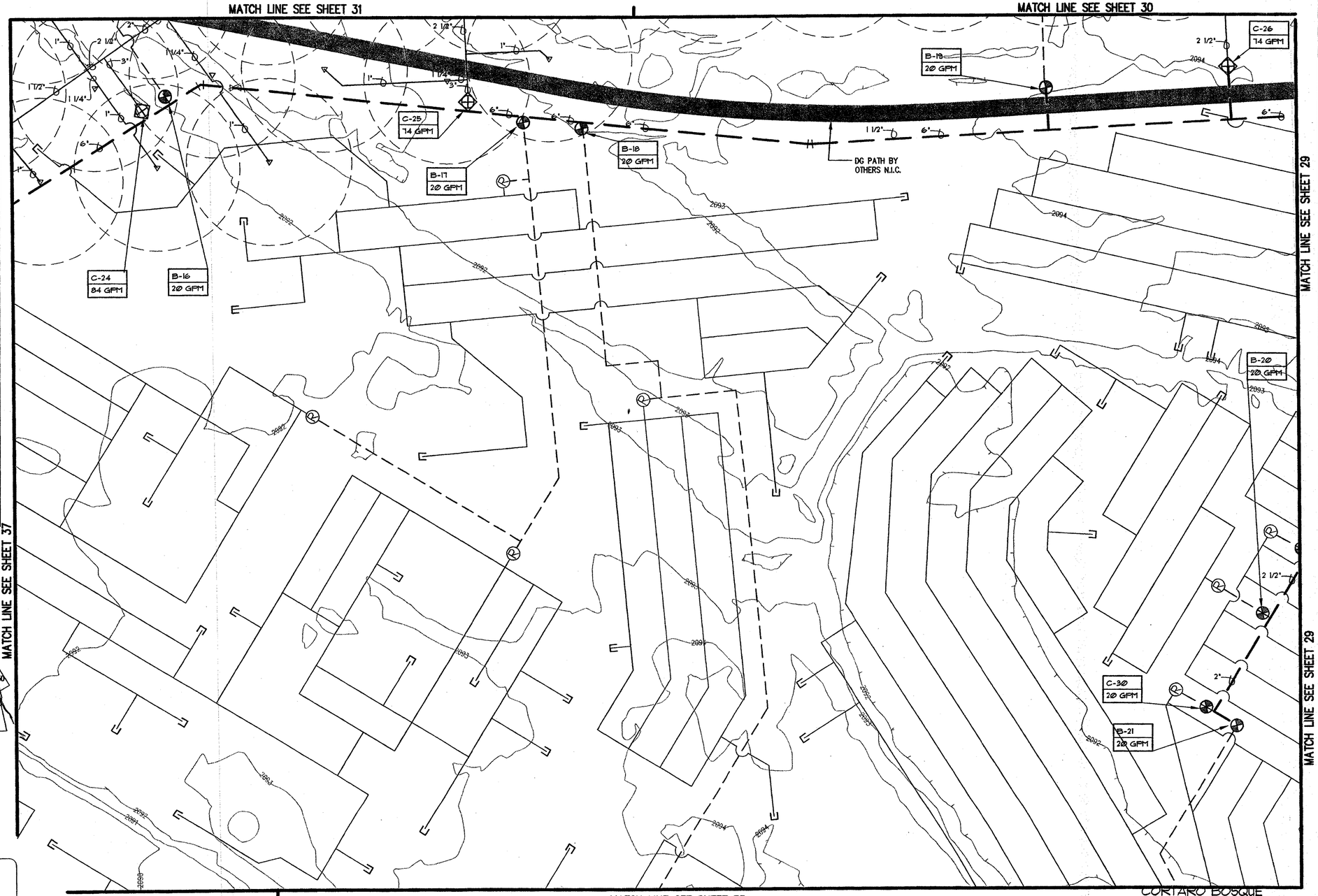
10/07 BROTHERS

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 37598
BRIAN C. EDDY
Date Signed 10/4/07
ARIZONA, U.S.A.

Scales Horiz. 1" = 30'

SHEET 31 OF 42

CORTARO BOSQUE
16-04-W-132281-0403

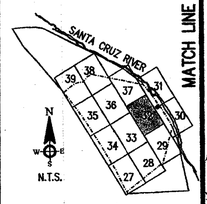


SCALE: 1" =30'

IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
	GATE VALVE
	MASTER VALVE
F	MASTER FILTER
	MAINLINE
	LATERAL
	SPRAY LATERAL
	EMITTER SUB-LATERAL
	SLEEVE
	EMITTER LATERAL FLUSH END CAP ASSEMBLY
	DRIP VALVE AND FILTER ASSEMBLY
	SPRAY VALVE
	PRESSURE REGULATOR
	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE



SHEET KEY:

Arizona Blue Stake
1-800-STAKE-IT (Outside Pima/Santa Cruz County)
263-1100 (Inside Pima/Santa Cruz County)
Call Two Working Days Before You Dig

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Engineering and Environmental Consultants
3343 E. Broadway Blvd. Suite 202
Tucson, Az 85716 (520) 326-5335

CORTARO BOSQUE
16-04-W-132281-0403

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

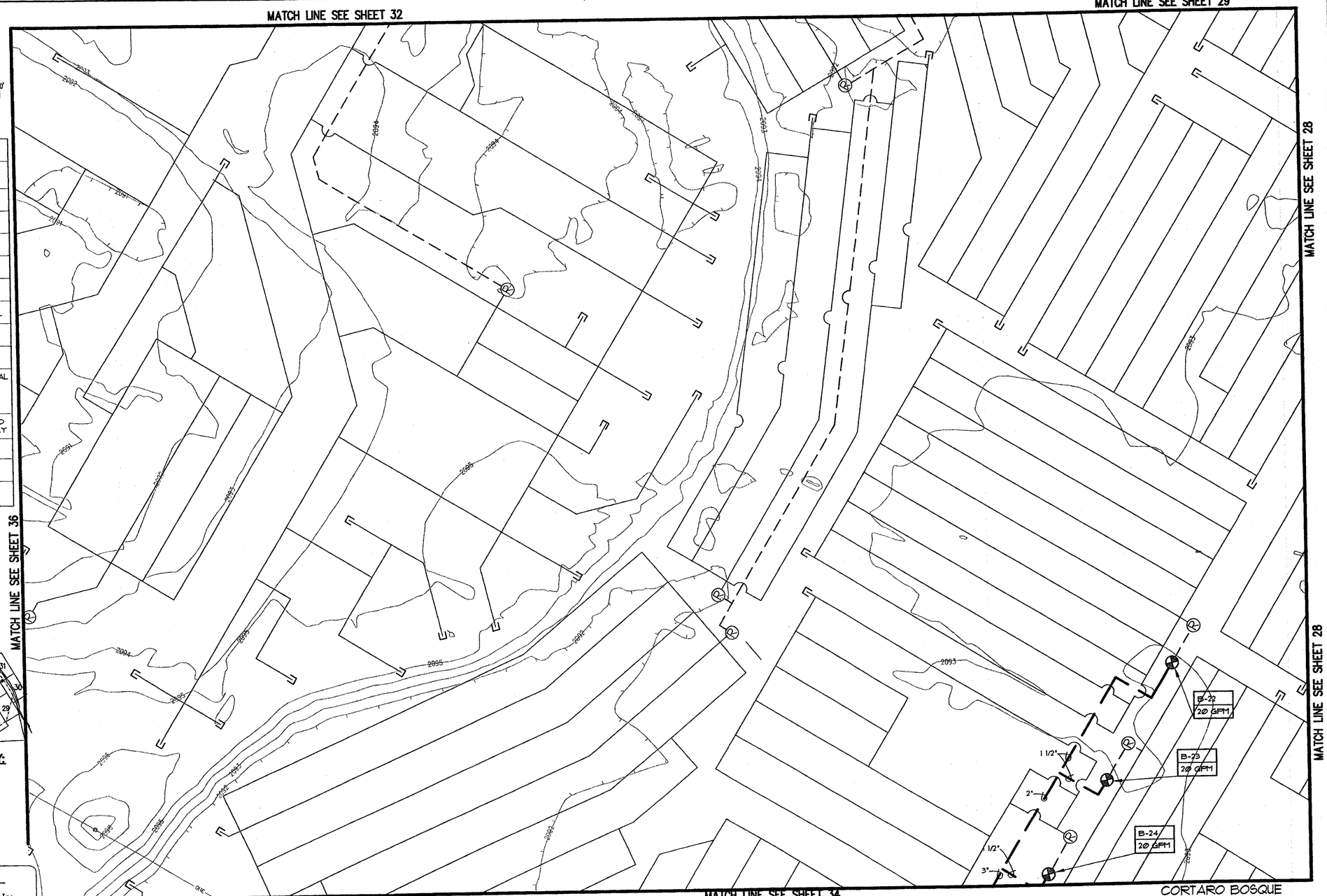
CORTARO VESQUITE BOSQUE
IRRIGATION PLANS

NO | REVISION DESCRIPTION | DIV/SECT ENGR. | DATE

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 37598
KEVIN C. EDDY
Date Signed 12-5-05
AZ, CAL, U.T., NV

Scales Horiz. 1' = 30'

SHEET 32 OF 42



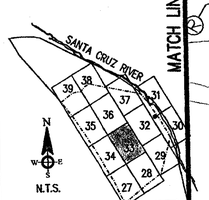
N
W E
S

30' 0' 30'
SCALE: 1" =30'

IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
▷◁	GATE VALVE
⊗	MASTER VALVE
Ⓕ	MASTER FILTER
▬▬	MAINLINE
- - -	LATERAL
———	SPRAY LATERAL
———	EMITTER SUB-LATERAL
├─┤	SLEEVE
─⊐	EMITTER LATERAL FLUSH END CAP ASSEMBLY
⊗	DRIP VALVE AND FILTER ASSEMBLY
⊠	SPRAY VALVE
⊗	PRESSURE REGULATOR
◁	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE



SHEET KEY:

Arizona Blue Stake
1-800-STAKE-IT (outside Pima/Pinal County)
263-1100 (inside Pima/Pinal County)
Call Two Working Days Before You Dig

WestLand Resources Inc.
Engineering and Environmental Consultants
2343 E. Broadway Blvd. Suite 202
Tucson, Az 85719 (520) 206-9585

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO	REVISION DESCRIPTION	DIV/SECT ENGR.	DATE

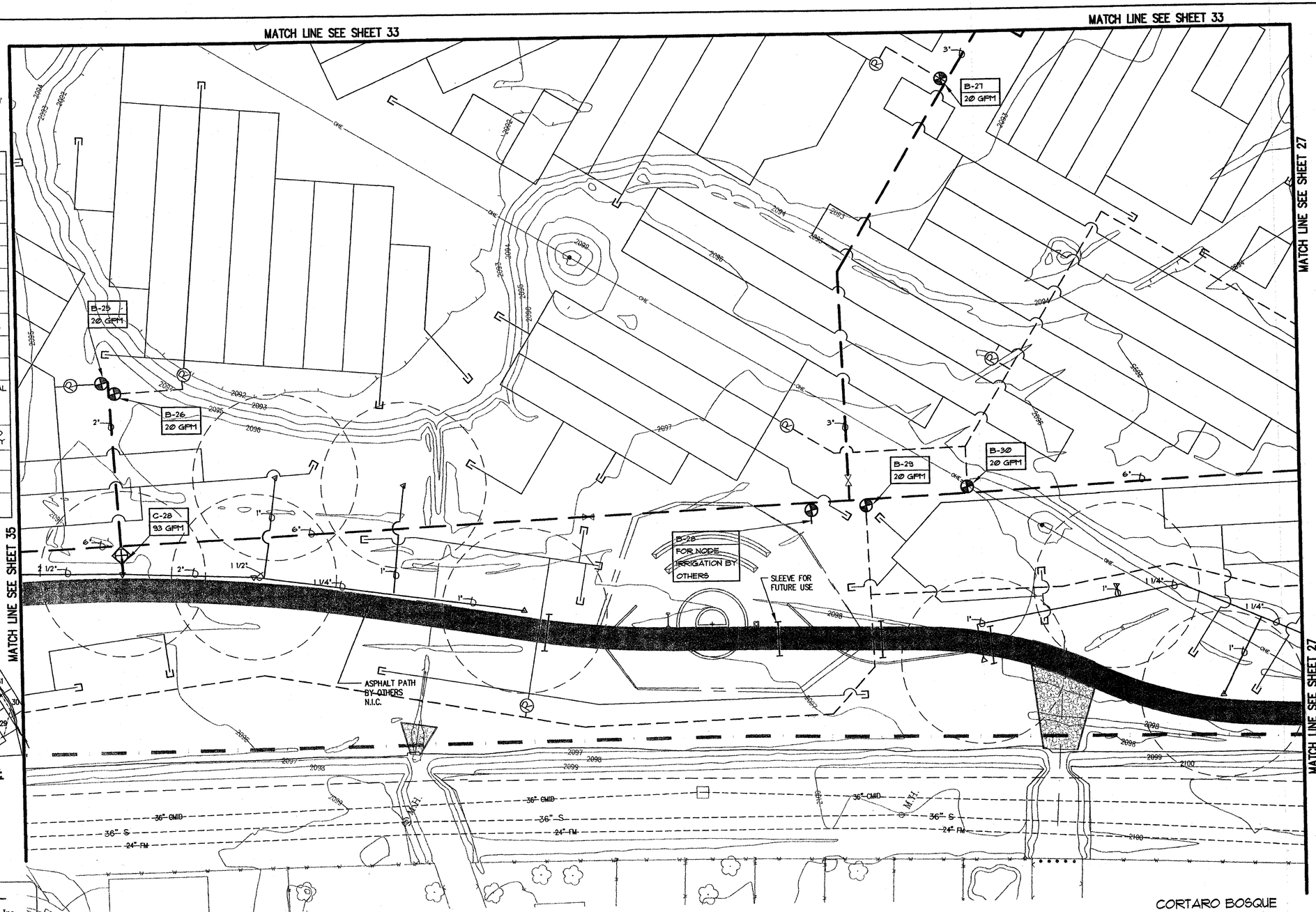
CORTARO MESQUITE BOSQUE
IRRIGATION PLANS
11/07 SFCP8G

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 37598
STEVEN C. EDDY
DATE EXPIRES 12/31/09
ARIZONA, U.S.A.

CORTARO BOSQUE
16-04-W-132281-0403

Scales Horiz. 1" = 30'

SHEET 33 OF 42



IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
	GATE VALVE
	MASTER VALVE
F	MASTER FILTER
	MAINLINE
	LATERAL
	SPRAY LATERAL
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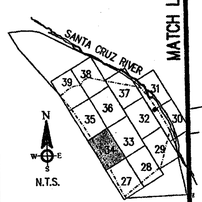
	SLEEVE
	EMITTER LATERAL FLUSH END CAP ASSEMBLY
	DRIP VALVE AND FILTER ASSEMBLY
	SPRAY VALVE
R	PRESSURE REGULATOR
	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE



SHEET KEY:

Arizona Blue Stake
1-800-STAKE-IT (outside Maricopa County)
263-1100 (inside Maricopa County)
Call Two Working Days Before You Dig

WestLand Resources Inc.
Engineering and Environmental Consultants
3343 E. Broadway Blvd. Suite 202
Tucson, Az 85716 (520) 326-5585

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO	REVISION DESCRIPTION	DIV/SECTENGR.	DATE

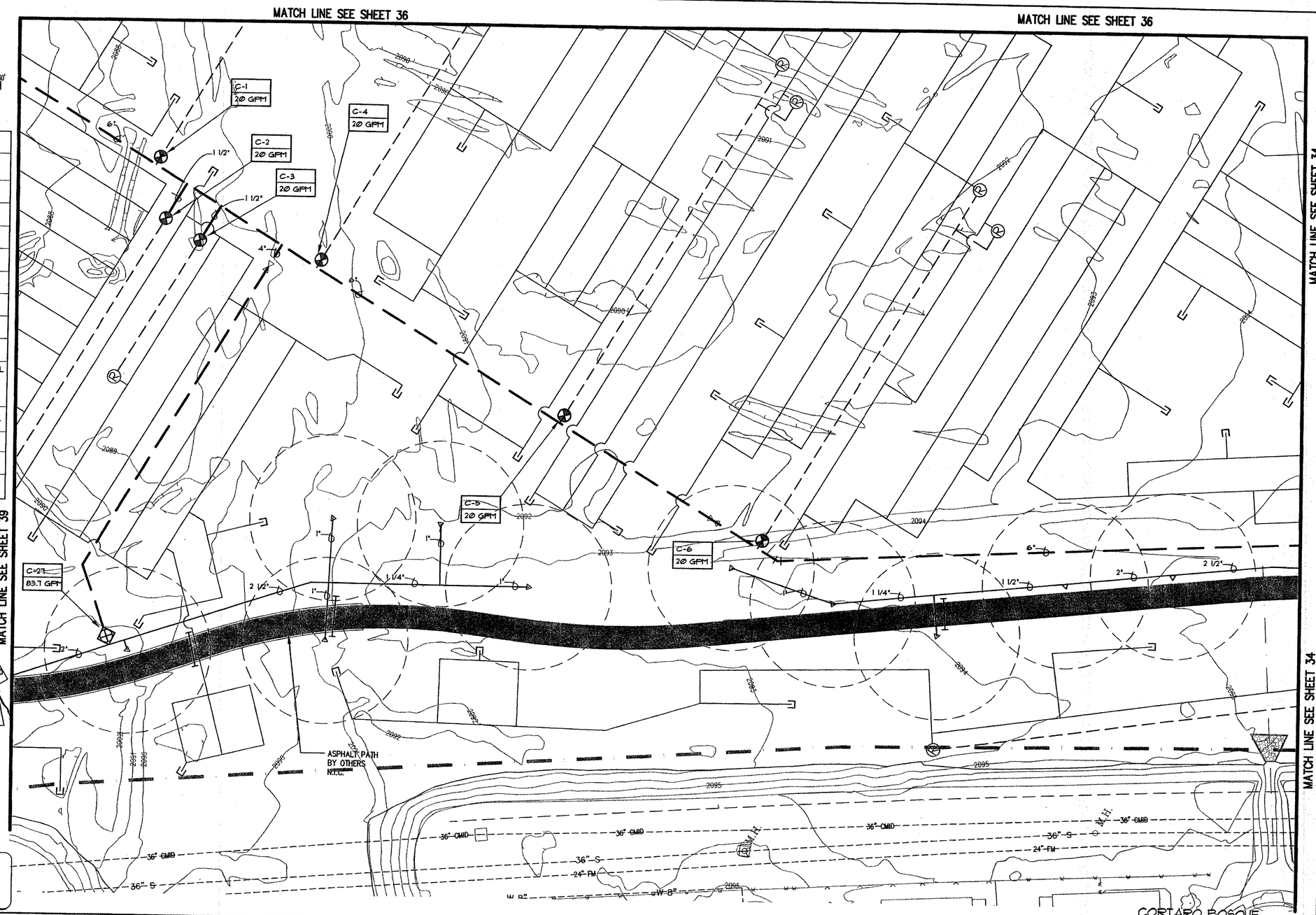
CORTARO/VESQUITE BOSQUE
IRRIGATION PLANS
W.O.: 8FCY8L6

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 37868
KEVIN C. KEMP
EXP. 12/31/09
STATE OF ARIZONA

CORTARO BOSQUE
16-04-W-132281-0403

Scales Horiz. 1'= 30'

SHEET 34 OF 42



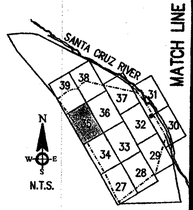
N
W E
S

30' 0' 30'
SCALE: 1" =30'

IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
	GATE VALVE
	MASTER VALVE
F	MASTER FILTER
	MAINLINE
	LATERAL
	SPRAY LATERAL
	EMITTER SUB-LATERAL
	SLEEVE
	EMITTER LATERAL FLUSH END CAP ASSEMBLY
	DRIP VALVE AND FILTER ASSEMBLY
	SPRAY VALVE
R	PRESSURE REGULATOR
	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE



SHEET KEY:

Arizona Blue Stake
1-800-STAKE-IT
(Outside Maricopa County)
263-1100
(Inside Maricopa County)
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WestLand Resources Inc.
Engineering and Environmental Consultants
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Tucson, AZ 85719 (520) 206-9585

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

CORTARO MESQUITE BOSQUE
IRRIGATION PLANS
18.0 ± ACRES

NO	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 37598
KEVIN C. EDDY
Date Signed 10-18-04
ARIZONA, U.S.A.

CORTARO BOSQUE
16-04-W-132281-0403

Scales Horiz. 1" = 30'

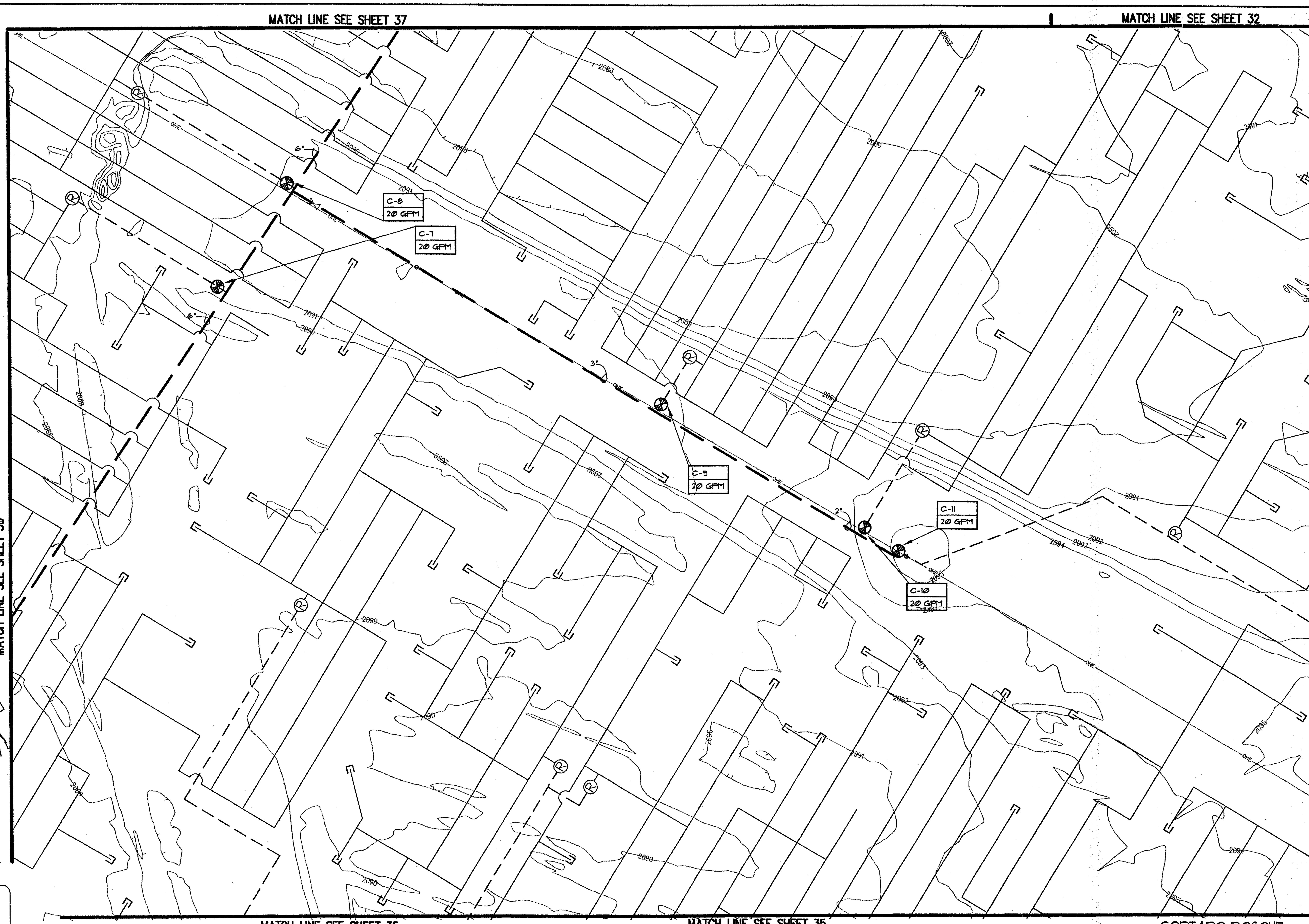
SHEET 35 OF 42

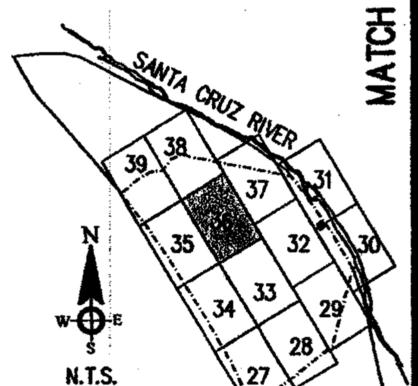
SCALE: 1" = 30'

IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
⋈	GATE VALVE
⊗	MASTER VALVE
Ⓕ	MASTER FILTER
— —	MAINLINE
- - -	LATERAL
———	SPRAY LATERAL
═══	EMITTER SUB-LATERAL
├─┤	SLEEVE
──⊐	EMITTER LATERAL FLUSH END CAP ASSEMBLY
⊗	DRIP VALVE AND FILTER ASSEMBLY
⊠	SPRAY VALVE
Ⓡ	PRESSURE REGULATOR
◁	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE





SHEET KEY:

Arizona Blue Stake
1-800-STAKE-IT (Outside Maricopa County)
263-1100 (Inside Maricopa County)
Call Two Working Days Before You Dig

WestLand Resources Inc.
Engineering and Environmental Consultants
2343 E. Broadway Blvd. Suite 202 Tucson, Az 85719 (520) 206-9585

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

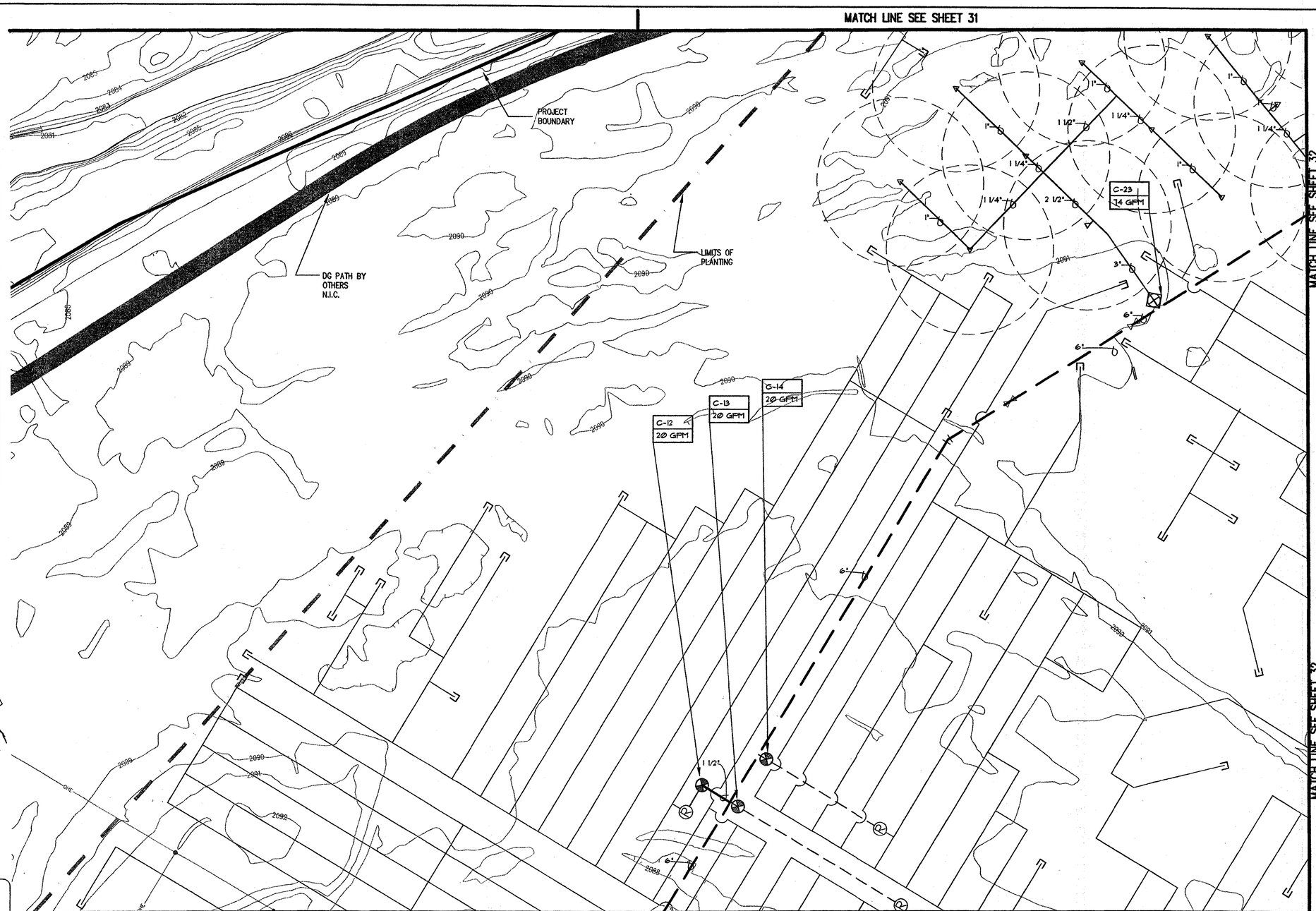
CORTARO MESQUITE BOSQUE
IRRIGATION PLANS

NO	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

CORTARO BOSQUE
16-04-W-132281-0403

Scales Horiz. 1" = 30'

SHEET 36 OF 42



N

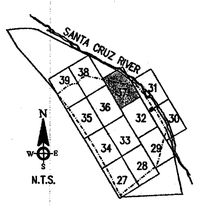
SCALE: 1" =30'

30' 0' 30'

IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
	GATE VALVE
	MASTER VALVE
F	MASTER FILTER
	MAINLINE
	LATERAL
	SPRAY LATERAL
	EMITTER SUB-LATERAL
	SLEEVE
	EMITTER LATERAL FLUSH END CAP ASSEMBLY
	DRIP VALVE AND FILTER ASSEMBLY
	SPRAY VALVE
R	PRESSURE REGULATOR
	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE



SHEET KEY:

Arizona Blue Stake
1-800-STAKE-IT (Outside Maricopa County)
263-1100 (Inside Maricopa County)
Call Two Working Days Before You Dig

WestLand Resources Inc.
Engineering and Environmental Consultants
2343 E. Broadway Blvd. Suite 202
Tucson, Az 85719 (520) 206-9585

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO	REVISION DESCRIPTION	DIV/SECT	ENGR.	DATE

CORTARO PESQUITE BOSQUE
IRRIGATION PLANS
11/07 SPECTRUM

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 37598
KEVIN C. EDDY
Date Signed 11/07
AZ U.S.A.

CORTARO BOSQUE
16-04-W-132281-0403

Scales Horiz. 1'= 30'

SHEET 37 OF 42

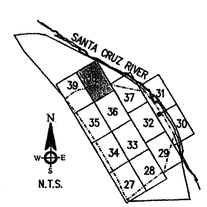
IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
	GATE VALVE
	MASTER VALVE
F	MASTER FILTER
	MAINLINE
	LATERAL
	SPRAY LATERAL
	EMITTER SUB-LATERAL
	SLEEVE
	EMITTER LATERAL FLUSH END CAP ASSEMBLY
	DRIP VALVE AND FILTER ASSEMBLY
	SPRAY VALVE
	PRESSURE REGULATOR
	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE

NOTES:

1. SEE SHEETS 21A, 21B, 22, 23 FOR PUMP AND RESERVOIR CONSTRUCTION.
2. SEE SHEETS 40-42 FOR ELECTRICAL WORK.
3. COORDINATE INSTALLATION OF IRRIGATION CONTROLLERS WITH ELECTRICAL AND PUMP WORK.



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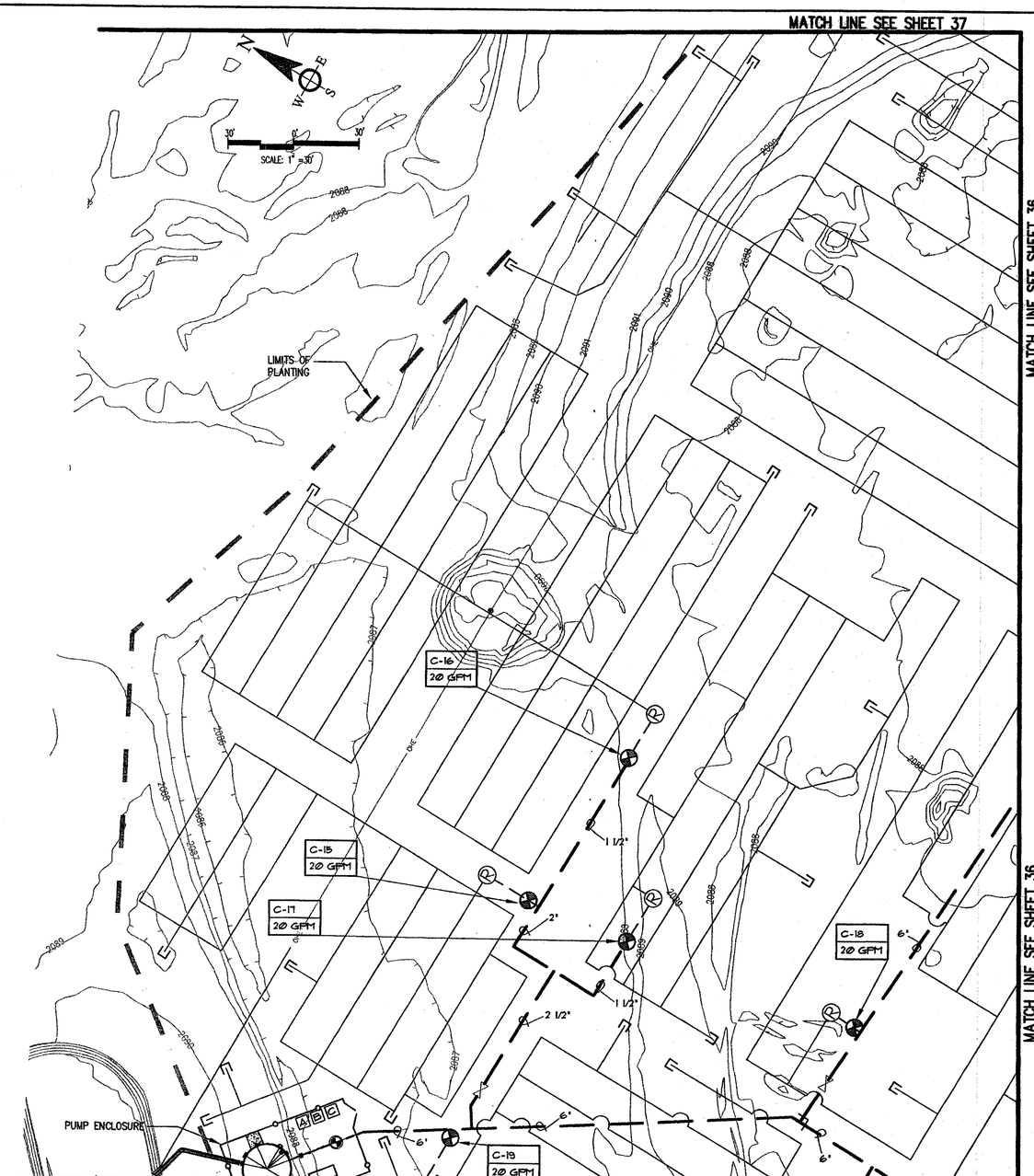

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Engineering and Environmental Consultants
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Tucson, Az 85716 (520) 326-5585

Arizona Blue Stake
1-800-STAKE-IT (outside Maricopa County)
263-1100 (inside Maricopa County)
Call Two Working Days Before You Dig

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO	REVISION DESCRIPTION	DIV/SECTENGR	DATE

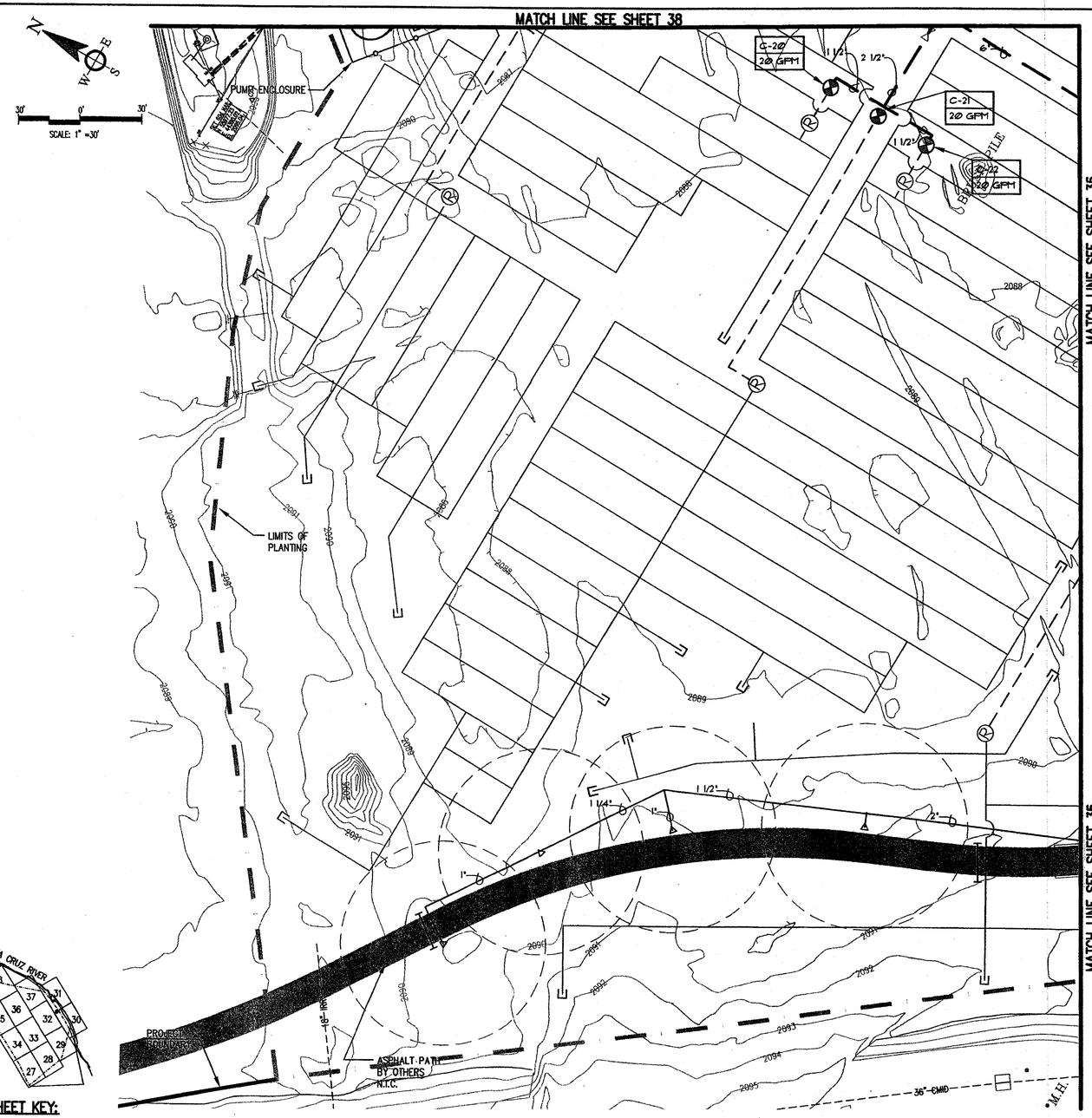
CORTARO VESQUITE BOSQUE
IRRIGATION PLANS
WO: 3PC7B6G

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 37598
KEVIN C. EDWARDS
Date Signed 12-20-06
STATE OF ARIZONA

CORTARO BOSQUE
16-04-W-132281-0403

Scales Horiz. 1" = 30'

MATCH LINE SEE SHEET 38



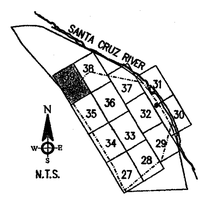
MATCH LINE SEE SHEET 35

MATCH LINE SEE SHEET 35

IRRIGATION LEGEND

SYM.	DESCRIPTION
A B C	CONTROLLERS
	GATE VALVE
	MASTER VALVE
F	MASTER FILTER
	MAINLINE
	LATERAL
	SPRAY LATERAL
	EMITTER SUB-LATERAL
	SLEEVE
	EMITTER LATERAL FLUSH END CAP ASSEMBLY
	DRIP VALVE AND FILTER ASSEMBLY
	SPRAY VALVE
R	PRESSURE REGULATOR
	ADJUSTABLE SPRAY ROTOR

SEE SHEET 26 FOR A COMPLETE IRRIGATION LEGEND AND EMITTER SCHEDULE



SHEET KEY:

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Engineering and Environmental Consultants
3343 E. Broadway Blvd., Suite 202
Tucson, Az 85716 (520) 326-9388

Arizona Blue Stake
1-800-STAKE-IT (Outside Maricopa County)
263-1100 (Inside Maricopa County)
Call Two Working Days Before You Dig

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO	REVISION DESCRIPTION	DIV/SECT ENGR.	DATE

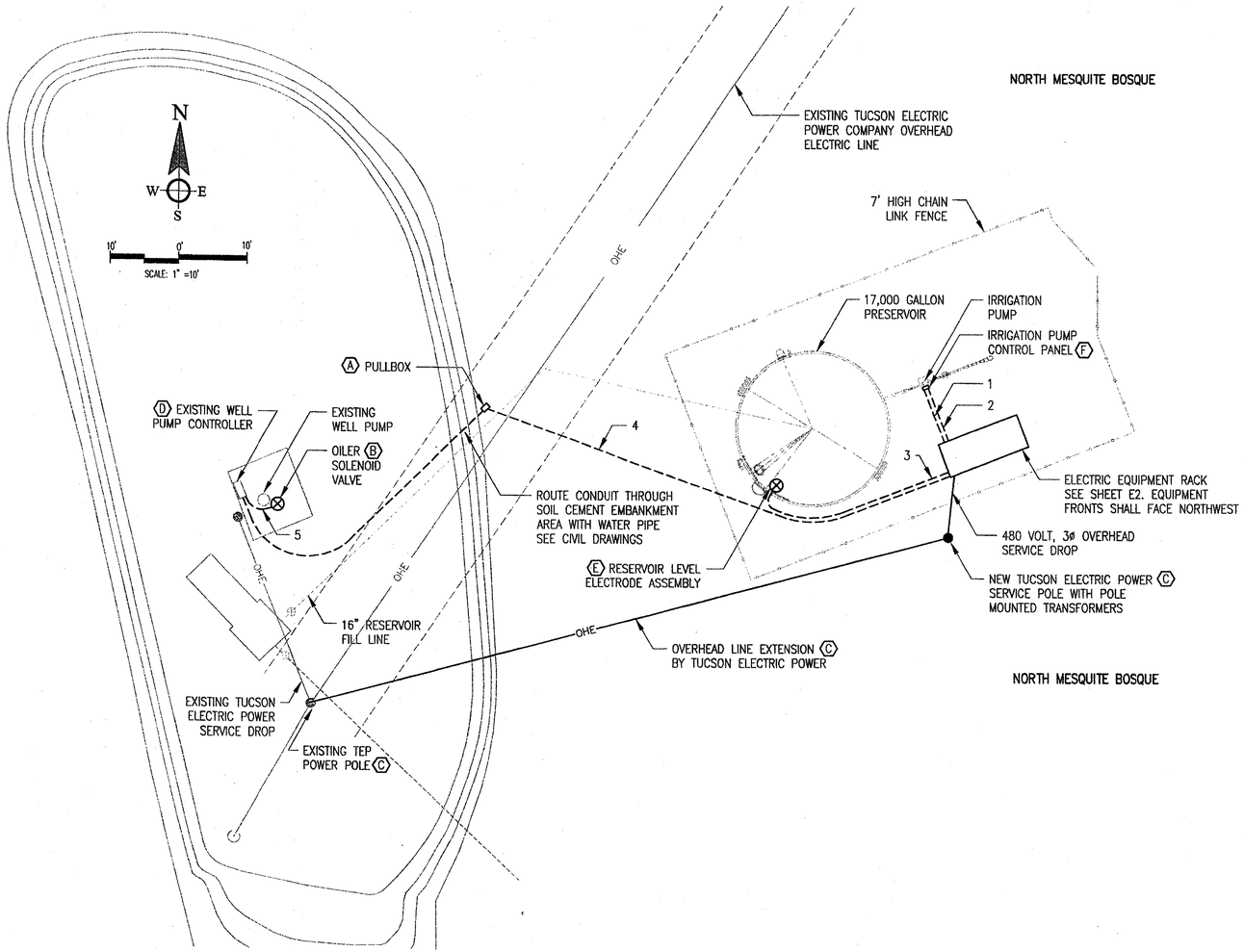
CORTARO MESQUITE BOSQUE
IRRIGATION PLANS
10/01 SPCTBG

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 37598
KEVIN C. EDDY
Date 8/18/16
AZ, U.S.A.

CORTARO BOSQUE
16-04-W-132281-0403

Scales Horiz. 1" = 30'

SHEET 39 OF 42



1/40 ELECTRICAL SITE PLAN
SCALE: 1" = 10'-0"

CONDUIT SCHEDULE

NO.	FROM	TO	CONDUIT	WIRE	COMMENT
1	IRRIGATION PUMP FEEDER DISCONNECT SWITCH	IRRIGATION PUMP CONTROL PANEL	1	3#12, #12G	480 VOLT POWER
2	RESERVOIR CONTROL PANEL	IRRIGATION PUMP CONTROL PANEL	1	2#14, #14G	LOW SUCTION CUTOFF SIGNAL (F)
3	RESERVOIR CONTROL PANEL	RESERVOIR LEVEL ELECTRODE ASSEMBLY	1	9#14, #14G	LEVEL SIGNALS 3#14 ARE SPARE
4	RESERVOIR CONTROL PANEL	NEW CONTROL PANEL AT EXISTING WELL PUMP	1	4#14, #14G	WELL CONTROL SIGNAL 2#14 ARE SPARE (D)
5	NEW CONTROL PANEL AT EXISTING WELL PUMP	WELL PUMP OILER SOLENOID VALVE	3/4	2#14, #14G	120 VOLT CONTROL (D)

NOTES:

KEYNOTES

A. PULL BOX SHALL BE SIZE No.3 WITH STEEL COVER MARKED "ELECTRICAL" PER DETAIL T101 OF THE PIMA COUNTY STANDARD DETAILS FOR PUBLIC IMPROVEMENT, 2003 EDITION. CONDUITS SHALL ENTER BOXES VERTICALLY FROM THE BOTTOM. NO BELOW GRADE SPLICES WILL BE ACCEPTED.

B. PUMP LINESHAFT OILER SOLENOID VALVE, DIRECT ACTING, NORMALLY OPEN, BRASS BODY WITH 3/8" THREADED FEMALE PIPE FITTINGS, 120 VAC COIL, ASCO 8262G264.

C. CONTRACTOR SHALL COORDINATE WITH TUCSON ELECTRIC POWER COMPANY FOR EXTENSION OF EXISTING OVERHEAD POWER LINE TO A NEW PLE LOCATION AS SHOWN

D. MODIFY EXISTING WELL PUMP CONTROLS PER CONTROL DIAGRAM DETAILS 1/42 AND 2/42.

E. RESERVOIR LEVEL ELECTRODE ASSEMBLY, 3" BRASS FLANGE, PROVISION FOR 7 WIRE SUSPENDED ELECTRODES, WITH RUBBER TERMINAL BOX COVER GASKET AND STAINLESS STEEL COVER SCREWS, WARRICK 3F7B-56 WITH 6 STAINLESS STEEL ELECTRODES MODEL 3W2, 3Z1A SUSPENSION WIRE AND SEVEN 3Z1B ADAPTERS. MOUNT TO TOP OF RESERVOIR ON A 3" FLANGED FITTING, SEE CIVIL DRAWINGS.

F. IRRIGATION PUMP IS BEING PROVIDED WITH A SELF CONTAINED CONTROL PANEL WHICH WILL MAINTAIN A DESIRED DISCHARGE PRESSURE. SEE CIVIL DRAWINGS FOR MORE DETAIL. CONTROLS SHALL BE ARRANGED TO STOP THE PUMP WHEN THE LOW RESERVOIR LEVEL PUMP CUTOFF CONTACTS OPEN (SEE CONTROL DIGRAM DETAIL 2/42).

Arizona Blue Stake
1-800-STAKE-IT (Outside Maricopa County)
263-1100 (Inside Maricopa County)
Call Two Working Days Before You Dig

WestLand Resources Inc.
Engineering and Environmental Consultants
2343 E. Broadway Blvd. Suite 202
Tucson, Az 85719 (520) 206-9585

RCE
RICHARD CANNEY ENGINEERING
5741 E. PLACITA VARAS
TUCSON, ARIZONA 85750
VOICE: (520) 615-8006
FAX: (520) 615-6495
canney@worldnet.att.net

M:PROJECTS\455.03\CORTARO-MESQUITE\CMB-40.DWG

CORTARO MESQUITE BOSQUE
W.O.# 5FCMBG

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

CORTARO MESQUITE BOSQUE
PUMP STATION ELECTRICAL PLAN
W.O.# 99-100 WPF

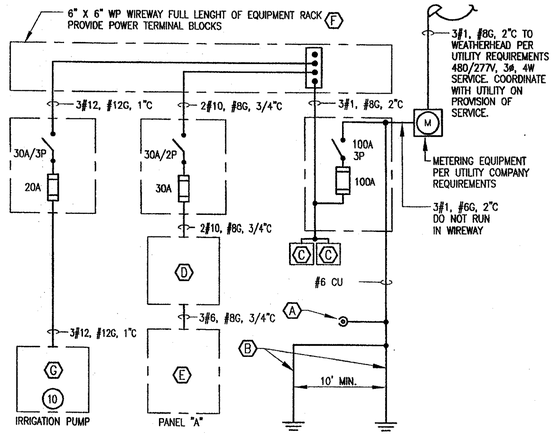
		DATE
DESIGNED	R.P.C.	1-2005
DRAWN	R.P.C.	1-2005
CHECKED	R.P.C.	1-2005
PROJ ENGR	M.F.T.	1-2005

Registered Professional Engineer (Electrical) CERTIFICATE NO. 14502 RICHARD P. CANNEY Date Signed 1-6-05 Expires 12-31-06 Arizona U.S.A.

Scales Horiz. AS NOTED Vert. N/A

SHEET 40 OF 42

E1



1/41 SINGLE LINE DIAGRAM (H)
NTS

KEYNOTES

A AVAILABLE ELECTRODES PER NEC 250.50

B TWO 8' X 5/8" COPPERCLAD STEEL GROUND RODS.

C TWO LIGHTNING ARRESTERS, INTERMATIC MODEL AG6503, OR EQUAL, INSTALLED PER NEC AND THE MANUFACTURER'S RECOMMENDATIONS.

D 480-120/240V, 1 PHASE, 3 WIRE, 10KVA DRY TYPE TRANSFORMER, WP, SQUARE D CATALOG NUMBER 10S1F, OR EQUAL. BOND TRANSFORMER SECONDARY NEUTRAL TO #8 PRIMARY GROUND AND #8 SECONDARY GROUND.

E PANEL "A". SEE PANEL SCHEDULE.

F TAP CONDUCTOR LENGTHS TO DISCONNECT SWITCHES FROM WIREWAY TERMINAL BLOCKS SHALL NOT EXCEED 25' PER NEC 240-21(b)(2).

G SELF-CONTAINED PACKAGED IRRIGATION PUMPING SYSTEM, SEE CIVIL DRAWINGS FOR DETAILS.

H ALL EQUIPMENT ENCLOSURES MOUNTED ON RACK SHALL BE WEATHERPROOF AND LOCKABLE. PROVIDE MINIMUM 4-1/2" SPACE BETWEEN ALL PANELS.

LOAD STUDY

LOADS, AT 480 V, 3ø:

IRRIGATION PUMP (10 HP)	14.0A
TRANSFORMER (10KVA, 1ø)	20.8A
SUBTOTAL	34.8A
25% LARGEST MOTOR	3.5A
SUBTOTAL	38.3A
RESERVE CAPACITY	61.7A
TOTAL	100.0A

PROVIDE A 100A, 480v, 3ø, 4W SERVICE

FAULT CURRENT

THE AVAILABLE FAULT FROM THE UTILITY IS 12,100 AMPERES FOR UP TO A 200 AMPERE SERVICE PER TEP SR-510, TABLE 1. MAXIMUM MOTOR CONTRIBUTION IS 4(14A) = 56A. ALL EQUIPMENT SHALL BE SERIES RATED FOR A 12,100A + 56A = 12,156A FAULT, MINIMUM. VERIFY ACTUAL AVAILABLE FAULT FROM UTILITY SERVICE DOES NOT EXCEED 12,100 AMPERES WITH UTILITY COMPANY BEFORE ORDERING EQUIPMENT.

PANEL SCHEDULE

PANEL: "A"
VOLTS: 120/240
PHASE: 1
WIRE: 3

AMPERE RATING: 50A MIN.
BUS MATERIAL: COPPER
MAIN DEVICE: 50A MCB
SHORT CIRCUIT RATING: 10,000A MIN.

MOUNTING: SURFACE
ENCLOSURE: NEMA 3R
BREAKERS: BOLT-ON

LOAD DESCRIPTION	CON. SIZE	WIRE SIZE	BKR	●	#	LOAD-KVA A	LOAD-KVA B	#	●	BKR	WIRE SIZE	CON. SIZE	LOAD DESCRIPTION
YARD/RACK LIGHT	1/2	12	20/1	C	1	0.60		2	N	15/1	14	1/2	RESERVOIR CONTROLS
RECEPTACLE	↓	↓	↓	N	3		0.50	4	N	20/1	12	↓	IRRIGATION CONTROLLERS
SPARE					5	---	0.18	6					SPARE
↓					7		---	8					↓
SPACE					9	---	---	10					SPACE
↓					11		---	12					↓

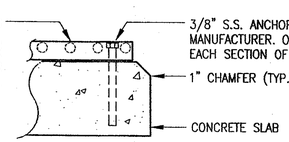
TOTAL CONNECTED LOAD	0.78	1.22
*C=CONTINUOUS X 125% (NEC 220-10b)	0.75	---
N=NON-CONTINUOUS (NEC 220-10b)	0.18	1.22
M=LARGEST MOTOR X 125% (NEC 220-14)	---	---
TOTAL CALCULATED NEC LOAD	0.93	1.22

HIGH LEG LOAD:

$$\frac{1.22\ KVA}{0.12\ KV} = 10.2\ AMPERES$$

ELECTRICAL SYMBOL LEGEND

3	RACEWAY EXPOSED (3 = CONDUIT NUMBER, SEE CONDUIT SCHEDULE)	(CR)	RELAY, CR=CONTROL RELAY TR=TIMING RELAY LR=LEVEL RELAY
----	RACEWAY CONCEALED IN FLOOR OR UNDERGROUND.		GROUND
	FLEXIBLE CONDUIT		SWITCH AND FUSE
	20A DUPLEX RECEPTACLE @ +18" AFF UNO,	(C)	PILOT LIGHT, WP, LED TYPE, G=GREEN, R=RED
	SPECIAL PURPOSE RECEPTACLE AS NOTED	⊗	TERMINAL
(J)	JUNCTION BOX. SIZE AND INSTALL PER NEC 370.		MOUNT ON FRONT OF PANEL DOOR
NF	FUSED DISCONNECT SWITCH, NF=NON-FUSED		OVERLOAD ELEMENT
		⊗	FIELD MOUNTED INSTRUMENT
AFF	ABOVE FINISHED FLOOR.	MCB	MAIN CIRCUIT BREAKER.
AIC	AMPS INTERRUPTING CAPACITY.	NTS	NOT TO SCALE
CU	COPPER	NEC	NATIONAL ELECTRIC CODE, 1999
ETM	ELAPSED TIME METER, WP, 6 DIGET NON-RESETTALBE	TEP	TUCSON ELECTRIC POWER
FVNR	FULL VOLTAGE NON-REVERSING	UNO	UNLESS NOTED OTHERWISE.
GFI	GROUND FAULT INTERRUPTER.	WP	WEATHERPROOF
G, GND	GROUND		



DETAIL A
NO SCALE

Arizona Blue Stake
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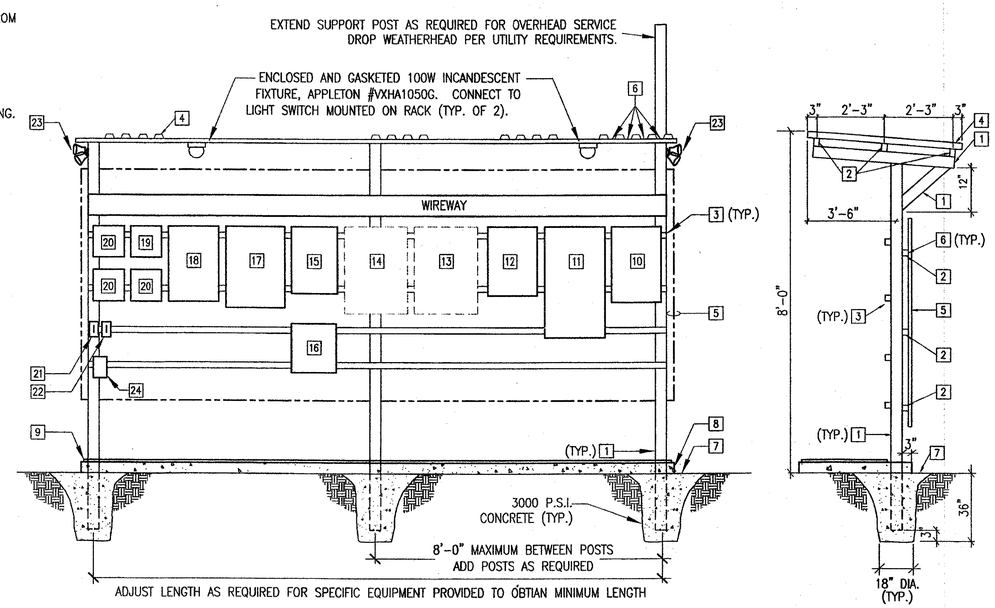
EQUIPMENT RACK KEYNOTES

1. 4" SQUARE X 1/4" WALL STEEL TUBING.
2. 2" SQUARE X 1/8" WALL STEEL TUBING.
3. C3 X 41# STEEL CHANNEL OR ENGINEER APPROVED EQUAL, AS REQUIRED TO SUPPORT ELECTRICAL EQUIPMENT.
4. 2.25" X 12" X 0.025" ALUMINUM RIB "W" ROOF PANEL. SLOPE TO REAR AT 1" IN 12".
5. 2.25" X 12" X 0.025" ALUMINUM RIB "W" PANEL. HEIGHT FROM TOP OF WIREWAY TO 6" BELOW LOWEST EQUIPMENT ON RACK.
6. #8 STAINLESS STEEL SELF TAPPING SCREWS, 3/8" LONG, AT MAXIMUM 8" O.C. ALONG SUPPORT TUBING.
7. 3000 PSI CONCRETE FOUNDATION.
8. 3000 PSI CONCRETE SLAB FULL LENGTH OF RACK, 5' WIDE X 4" THICK, WITH 2.1X2.1X6"X6" WELDED WIRE MESH REINFORCING.
9. 4' WIDE FIBERGLASS GRATING ON CONCRETE SLAB, SEE DETAIL "A", LENGTH TO MATCH SLAB.
10. UTILITY METER
11. MAIN DISCONNECT SWITCH
12. IRRIGATION PUMP DISCONNECT SWITCH
13. 24" WIDE SPACE FOR FUTURE EQUIPMENT
14. 24" WIDE SPACE FOR FUTURE EQUIPMENT
15. TRANSFORMER DISCONNECT SWITCH
16. 480-120/240V TRANSFORMER
17. 120/240 VOLT PANEL "A"
18. RESERVOIR CONTROL PANEL
19. MAIN IRRIGATION CONTROLLER
20. SATELLITE IRRIGATION CONTROLLER (TYP. OF 3)
21. SWITCH FOR EQUIPMENT RACK LIGHTS. PROVIDE NAMEPLATE TO READ "EQUIPMENT RACK LIGHTS".
22. SWITCH FOR YARD LIGHTS. PROVIDE NAMEPLATE TO READ "YARD LIGHTS".
23. YARD LIGHTS, WEATHERPROOF FLOODLIGHT LAMP HOLDER WITH TWO 100 WATT FLOODLIGHTS (TYPICAL OF 2 LOCATIONS)
24. 120V, 20A, WP, GFI, RECEPTACLE. PROVIDE WEATHERPROOF COVER WHEN PLUG IS INSERTED.

EQUIPMENT RACK NOTES:
1. ALL EQUIPMENT AT EQUIPMENT RACK SHALL BE WEATHERPROOF AND LOCKABLE.
2. RACK SHALL BE PAINTED AFTER FABRICATION AND BEFORE EQUIPMENT IS MOUNTED.
3. PROVIDE MINIMUM 4-1/2" SPACE BETWEEN ALL PANELS.
4. WELD ALL STRUCTURAL STEEL JOINTS (KEYNOTE ITEMS 1 THRU 3). PROVIDE WELDED END CAPS ON ALL TUBING ENDS WITH STEEL MATCHING TUBING THICKNESS. ALL WELDS SHALL BE GROUND SMOOTH.



2/41 EQUIPMENT RACK
NTS

CORTARO MESQUITE BOSQUE
W.O.# 5FCMBG

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PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

CORTARO MESQUITE BOSQUE
ELECTRICAL SINGLE LINE DIAGRAM
W.O.# 99-080 VPF

		DATE
DESIGNED	R.P.C.	2-2005
DRAWN	R.P.C.	2-2005
CHECKED	R.P.C.	2-2005
PROJ. ENGR	M.F.T.	2-2005

Registered Professional Engineer (Electrical) RICHARD P. CANNEY 14502 ARIZONA U.S.A.

M:PROJECTS\455.03\CORTARO-MESQUITE\CMB-41.DWG

Scales Horiz. AS NOTED Vert. N/A

SHEET 41 OF 42

E2

ELECTRICAL SPECIFICATIONS AND GENERAL NOTES

1. PERFORM WORK IN ACCORDANCE WITH THE 2002 NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REGULATIONS, AND OTHER ORDINANCES HAVING JURISDICTION.

2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE ELECTRIC UTILITY COMPANY AND TELEPHONE COMPANY TO DETERMINE DETAILS OF POWER AND TELEPHONE SERVICE REQUIREMENTS.

3. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THE WORK AS SHOWN AND SPECIFIED. EQUIPMENT REQUIRING ADJUSTMENTS OR CALIBRATIONS FOR PROPER OPERATION SHALL BE SET BY THE CONTRACTOR AS SPECIFIED, AS DIRECTED BY THE OWNER, OR AS REQUIRED FOR PROPER OPERATION.

4. THE LAYOUT OF THE CONTRACT DRAWINGS IS DIAGRAMMATIC. IT IS NOT THE INTENT OF THESE PLANS AND/OR SPECIFICATIONS TO SHOW EVERY DETAIL OF CONSTRUCTION. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.

5. CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO SUBMITTING BID TO VERIFY ALL EXISTING CONDITIONS, LOCATIONS, DIMENSIONS AND COUNTS AS SHOWN AND/OR SPECIFIED.

6. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO DETERMINE ELECTRICAL REQUIREMENTS, SPACES AND ADEQUATE CLEARANCES WITH RESPECT TO OTHER EQUIPMENT IN THE BUILDING, AND PROVIDE ANY RACEWAY, WIRING, OR CONNECTIONS REQUIRED FOR PROPER OPERATION.

7. KEEP AREAS IN WHICH WORK IS BEING PERFORMED FREE FROM DEBRIS AND LEAVE BROOM CLEAN AT END OF WORKING DAY.

8. EQUIPMENT, MATERIAL, AND WORKMANSHIP SHALL BE GUARANTEED FREE FROM DEFECTS FOR ONE YEAR FROM DATE OF ACCEPTANCE.

9. WORK PERFORMED SHALL BE DONE BY A LICENSED CONTRACTOR IN A FIRST-CLASS WORKMANLIKE MANNER AND ALL SYSTEMS SHALL BE TESTED IN PRESENCE OF THE OWNER TO DEMONSTRATE THAT EQUIPMENT IS WORKING PROPERLY. DEFECTS SHALL BE RECTIFIED AT NO COST TO THE OWNER. EQUIPMENT REQUIRING ADJUSTMENTS OR CALIBRATIONS FOR PROPER OPERATION SHALL BE SET BY THE CONTRACTOR AS NECESSARY, SPECIFIED OR DIRECTED BY THE OWNER.

10. ELECTRICAL EQUIPMENT, DEVICES, AND MATERIAL SHALL BE NEW, UL LISTED FOR THE INTENDED USE AND SHALL MEET APPLICABLE NEMA, ANSI, AND ASTM STANDARDS.

11. WIRING DEVICES SHALL BE SPECIFICATION GRADE HUBBELL, LEVITON OR EQUAL. RECEPTACLES SHALL HAVE NYLON OR POLYCARBONATE FACES AND BE LABELED MEETING FEDERAL SPECIFICATIONS. UNLESS NOTED OTHERWISE, RECEPTACLES SHALL BE 120V, 15A, DUPLEX, EXCEPT THAT RECEPTACLES ON DEDICATED CIRCUITS (I.E. NO OTHER DEVICES ON CIRCUIT) SHALL BE 20A. RECEPTACLES ON DEDICATED CIRCUITS SHALL BE PROVIDED WITH ENGRAVED NAMEPLATES OR DEVICE PLATES READING "DEDICATED CIRCUIT" AND GIVING THE PANEL AND CIRCUIT NUMBER OF THE BREAKER FEEDING IT. SWITCHES SHALL BE 20A WITH NEOPRENE RUBBER PADS FOR QUIET OPERATION, HUBBELL 1221 (1P), 1222 (2P), OR 1223 (3W), LEVITON 1221-2 (1P), 1222-2 (2P), OR 1223-2 (3W), OR EQUAL.

12. USE STRANDED COPPER WIRE ONLY. USE THHN/THWN FOR #6 AWG AND SMALLER, EXCEPT FOR WIRE BELOW GRADE. USE XHHW FOR WIRE LARGER THAN #6 AWG, AND OR ALL WIRE BELOW GRADE.

13. EQUIPMENT LUGS, CONNECTORS, AND TERMINATIONS, INCLUDED IN PANELS, SWITCHES, STARTERS, CONTACTORS, AND CIRCUIT BREAKERS SHALL BE SUITABLE FOR USE WITH CONDUCTOR OPERATING AT 75 DEGREE C.

14. ALL CONDUCTORS SHALL BE IN APPROVED RACEWAY, USE:

    A. RIGID GALVANIZED STEEL (RS): WHERE CONDUIT BENDS UPWARD FROM UNDERGROUND TO ABOVE GROUND, USE RS ELBOW WITH AN APPROVED PVC TO RS COUPLER. RS CONDUIT SHALL EXTEND A MINIMUM OF 18" BELOW GRADE. USE RS IN ALL AREAS WHERE CONDUIT MAY BE EXPOSED TO PHYSICAL DAMAGE. USE THREADED STEEL FITTINGS. THREADS OF CONDUIT INSTALLED OUTDOORS SHALL BE COATED WITH ZINC RICH PAINT PRIOR TO MAKING UP. UNDERGROUND METAL CONDUIT SHALL BE PVC COATED RIGID STEEL.

    B. INTERMEDIATE METAL CONDUIT (IMC): MAY BE USED IN SIZES 1-1/2" AND LARGER IN LIEU OF RIGID STEEL. FITTINGS AND INSTALLATION SHALL BE AS FOR RIGID STEEL.

    C. POLYVINYL CHLORIDE (PVC) SCHEDULE 40: MAY BE USED BELOW FINISHED GRADE. INSTALL 24 INCHES MINIMUM BELOW FINISHED GRADE SURROUNDED BY 3 INCHES OF SAND OR SELECTED FILL FREE OF ORGANIC MATTER, STICKS, GRAVEL, OR OTHER SHARP OBJECTS, EXCEPT THAT UNDER CONCRETE SLABS NO MINIMUM DEPTH IS REQUIRED.

    D. LIQUIDTIGHT FLEXIBLE METAL CONDUIT: USE TO CONNECT TO EQUIPMENT INSTALLED OUTDOORS (18 INCHES MAX LENGTH). USE STEEL FITTINGS. USE COMPRESSION TYPE CONNECTORS.

15. FITTINGS, BOXES, AND SUPPORTS SHALL BE PROVIDED AS REQUIRED TO PROVIDE A COMPLETE SYSTEM. FS AND FD BOXES SHALL BE COPPER-FREE CAST ALUMINUM, LARGER BOXES SHALL BE NEMA 4X STAINLESS STEEL. PROVIDE WATERTIGHT COPPER-FREE CAST ALUMINUM THREADED O-RING HUBS FOR ALL CONDUIT CONNECTIONS TO THE TOPS OR SIDES OF ENCLOSURES THAT DO NOT HAVE INTEGRAL THREADED HUBS. CONDUIT BODIES SHALL BE COPPER-FREE CAST ALUMINUM. DOUBLE LOCKNUTS SHALL NOT BE USED.

16. PROVIDE PULL BOXES FOR UNDERGROUND ELECTRICAL CONDUITS SUCH THAT NO SINGLE CONDUIT RUN HAS BENDS IN EXCESS OF 270 DEGREES. PULL BOXES SHALL BE PRECAST CONCRETE WITH H-20 HIGHWAY RATING U.N.O. WARNING TAPES WHICH SAY "WARNING-BURIED ELECTRICAL" SHALL BE PLACED IN TRENCHES 12" ABOVE ALL UNDERGROUND ELECTRIC CONDUITS. WARNING TAPE SHALL BE METALLIC TRACEABLE TYPE.

17. FUSES SHALL BE TIME DELAY, CLASS RK-1, BUSS LPS-RK_SP, OR EQUAL. FUSES FOR MOTOR CONTROL CIRCUITS SHALL BE TIME DELAY, BUSS FNM, OR EQUAL. FUSES FOR CONTROL TRANSFORMER PRIMARY SHALL BE TIME DELAY, CLASS CC, BUSS FNQ-R, OR EQUAL.

18. DISCONNECT SWITCHES SHALL BE FUSED, 3 POLE, WITH CLASS R FUSE CLIPS AND VOLTAGE RATING AS REQUIRED UNLESS OTHERWISE SHOWN. OUTDOOR UNITS SHALL BE NEMA 4X STAINLESS STEEL. UNITS SHALL BE HEAVY DUTY, HORSEPOWER RATED, AND HAVE MEANS FOR PAD LOCKING IN THE OPEN POSITION.

19. MOTOR STARTERS SHALL BE COMBINATION FUSED DISCONNECT TYPE, WITH NEMA SIZED CONTACTORS AND FULL OR REDUCED VOLTAGE STARTING FEATURES AS SHOWN ON THE SINGLE-LINE DIAGRAM. DISCONNECT SWITCHES SHALL HAVE THE FEATURES SPECIFIED FOR DISCONNECT SWITCHES ABOVE, INCLUDING MEANS FOR PAD LOCKING IN THE OPEN POSITION. ENCLOSURES SHALL BE NEMA 4X STAINLESS STEEL, AND PROVIDED WITH EXTRA SPACE FOR INSTALLATION OF AUXILIARY EQUIPMENT.

20. DISCONNECT SWITCHES, STARTERS PANELS, AND TIME CONTROLS SHALL BE LABELED WITH ENGRAVED PLASTIC LAMINATE NAMEPLATES ATTACHED WITH 316 STAINLESS STEEL SCREWS.

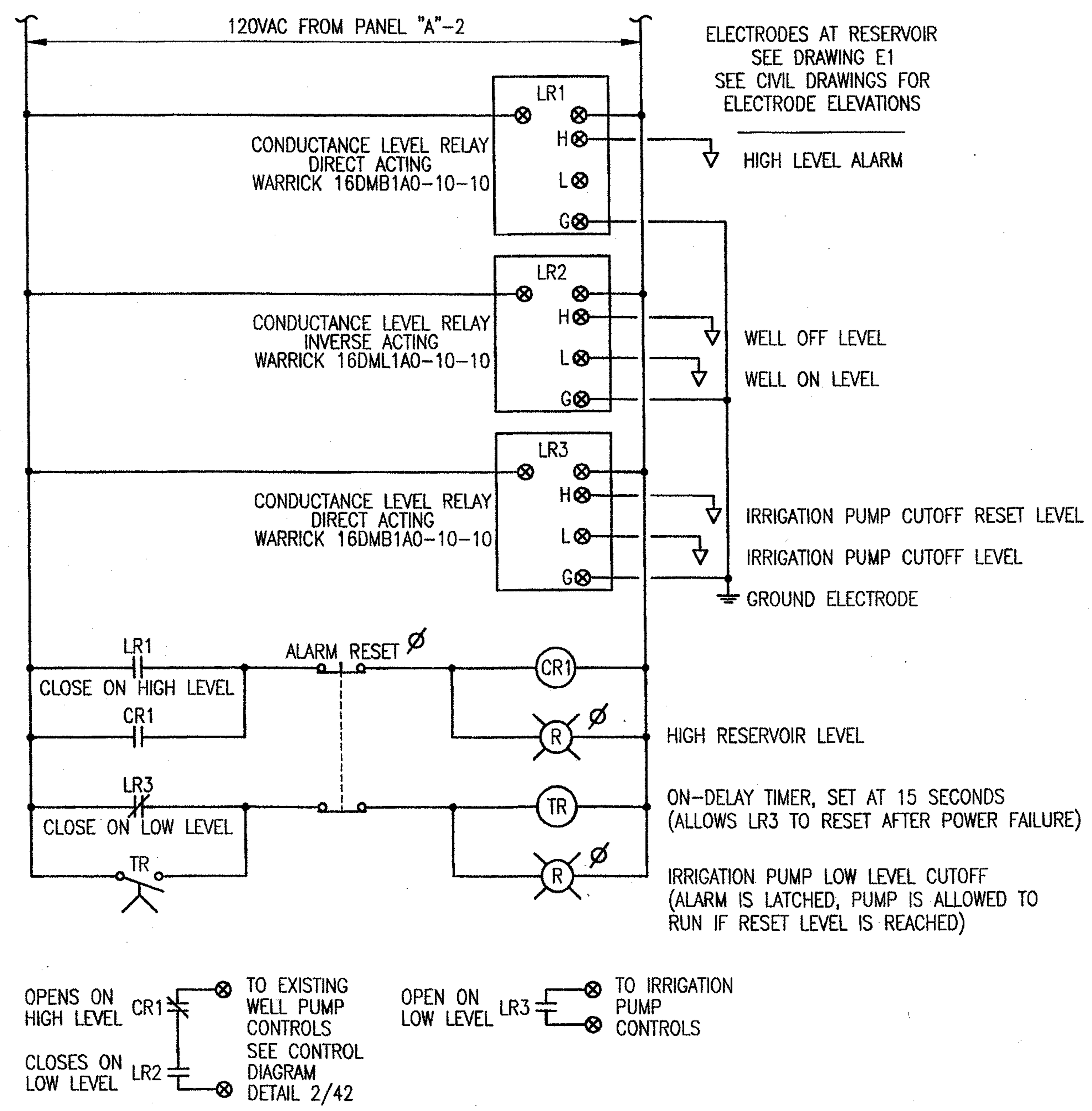
21. CIRCUIT BREAKERS SHALL BE INVERSE TIME TYPE (THERMAL-MAGNETIC). TWO POLE CIRCUIT BREAKERS SHALL BE COMMON TRIP. NO TIE HANDLES PERMITTED.

22. DO NOT USE PERFORATED STRAP IRON, PLUMBER'S TAPE OR TIE WIRE AS A RACEWAY OR DEVICE SUPPORT.

23. PROVIDE EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS. SIZE WIRE PER NEC TABLE 250-122.

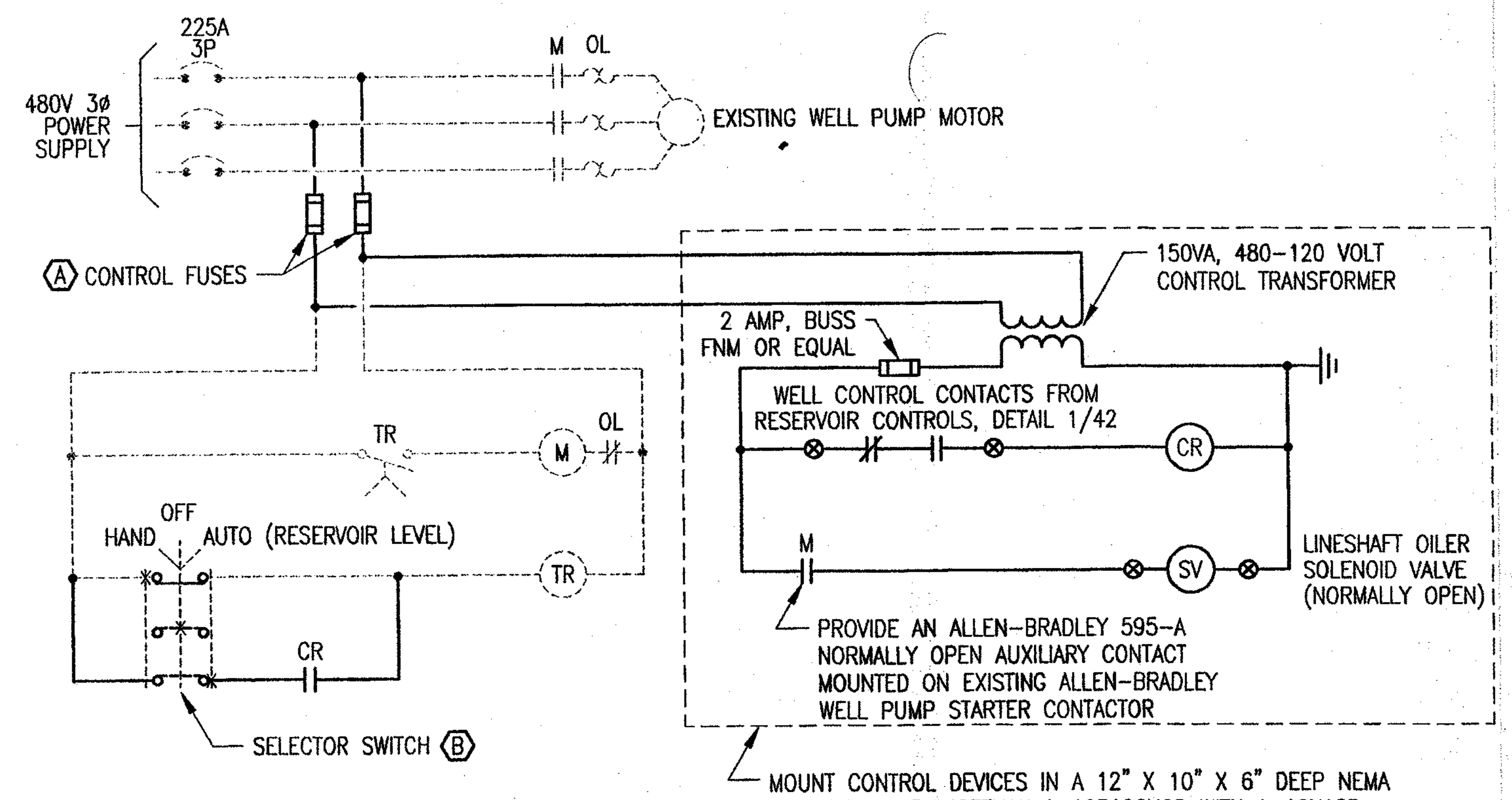
29. ALL REQUIRED SYSTEM SHUTDOWNS SHALL BE COORDINATED WITH THE OWNER AT LEAST FOUR DAYS IN ADVANCE OF THE SHUTDOWN.

31. USE ZINC RICH COATING (ZRC) PRODUCT FOR TOUCH-UP OF GALVANIZING. COATING SHALL MET OR EXCEED HOT DIPPED GALVANIZING.



MOUNT CONTROL DEVICES IN A 16" X 12" X 6" DEEP NEMA 3R ENCLOSURE, HOFFMAN A-16R126HCR WITH A-16N12P DEVICE MOUNTING PANEL, OR EQUAL, MOUNTED MOUNTED ON THE EQUIPMENT RACK AT THE RESERVOIR SITE.

1/42 RESERVOIR CONTROLS
NTS



MOUNT CONTROL DEVICES IN A 12" X 10" X 6" DEEP NEMA 3R ENCLOSURE, HOFFMAN A-12R106HCR WITH A-12N10P DEVICE MOUNTING PANEL, OR EQUAL, MOUNTED ADJACENT TO THE EXISTING WELL PUMP CONTROL PANELS. PROVIDE 1-5/8" X 1-5/8" GALVANIZED STEEL FRAMING CHANNEL SUPPORT FROM EXISTING EQUIPMENT RACK AS REQUIRED.

EXISTING CIRCUITS ARE SHOWN DASHED AND SHADED, NEW CIRCUITS ARE SHOWN SOLID.

2/42 EXISTING WELL PUMP CONTROL MODIFICATIONS
NTS

KEYNOTES

A. PROVIDE 8/10 AMPERE BUSS FNQ-R FUSES WITH FUSE BLOCK MOUNTED IN EXISTING WELL PUMP STARTER ENCLOSURE. RECONNECT EXISTING 480 VOLT CONTROL CIRCUIT TO SECONDARY OF FUSES AS SHOWN.

B. REPLACE EXISTING HAND-OFF-AUTO SELECTOR SWITCH WITH A SINGLE OPERATOR, 3-POSITION HAND-OFF-AUTO CONTROL STATION, ALLEN-BRADLEY 800T-R3TA, OR EQUAL. RECONNECT EXISTING CONTROL CIRCUIT TO THE "HAND" CONTACTS, AND CONNECT THE NEW "AUTO" CIRCUIT AS SHOWN.

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M:PROJECTS\455.03\CORTARO-MESQUITE\CMB-42.DWG

PIMA COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL DISTRICT

NO.	REVISION DESCRIPTION	DIV/SECT.ENGR.	DATE

CORTARO MESQUITE BOSQUE
CONTROL DIAGRAMS
W.O.# 99-080 WPF

		DATE
DESIGNED	R.P.C.	2-2005
DRAWN	R.P.C.	2-2005
CHECKED	R.P.C.	2-2005
PROJ ENGR	M.F.T.	2-2005

Registered Professional Engineer (Electrical) Certificate No. 14502 RICHARD P. CANNEY ARIZONA U.S.A.

CORTARO MESQUITE BOSQUE
W.O.# 5FCMBG

Scales Horiz. AS NOTED Vert. N/A